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OIL AS A WEAPON OF THE 21ST CENTURY: ENERGY SECURITY AND THE U.S. PIVOT TO ASIA-PACIFIC

by

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March 2016

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This thesis examines the U.S. pivot to Asia to determine whether energy security issues are likely to complicate relations and/or lead to friction between the United States and China in the twenty-first century. Drawing on case studies in which energy issues directly and indirectly drive states' decisions to use military force to secure access to energy resources, or leverage access to resources as a means of coercive diplomacy, this research projects how similar scenarios may develop in the twenty-first century. The analysis also supports the notion that mutual interests in access to Middle Eastern energy resources and centrality of the Sea Lanes of Communication (SLOCs) in its transport could result in cooperative security arrangements in the absence of preferential access to any country. Conflict could potentially result from territorial disputes involving U.S. collective defense treaty allies. For this reason, it is recommended that the United States pursue a diplomatic solution to territorial disputes and avoid policies that limit China's access to the SLOCs.

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This thesis examines the U.S. pivot to Asia to determine whether energy security issues are likely to complicate relations and/or lead to friction between the United States and China in the twenty-first century. Drawing on case studies in which energy issues directly and indirectly drive states' decisions to use military force to secure access to energy resources, or leverage access to resources as a means of coercive diplomacy, this research projects how similar scenarios may develop in the twenty-first century. The analysis also supports the notion that mutual interests in access to Middle Eastern energy resources and centrality of the Sea Lanes of Communication (SLOCs) in its transport could result in cooperative security arrangements in the absence of preferential access to any country. Conflict could potentially result from territorial disputes involving U.S. collective defense treaty allies. For this reason, it is recommended that the United States pursue a diplomatic solution to territorial disputes and avoid policies that limit China's access to the SLOCs.

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LIST OF ACRONYMS AND ABBREVIATIONS

A2/AD	Anti-Access/Area Denial
ADIZ	Air Defense Identification Zone
b/d	Barrels per day
CAGP	Central Asian Gas Pipeline
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
CPEC	China Pakistan Economic Corridor
CSS	Carbon Capture Storage
CTF	Combined Task Force
DoD	Department of Defense
EEZ	Economic Exclusion Zone
EIA	Energy Information Administration
EIS	Eye in the Sky
ESPO	Eastern Siberian Oil Fields
EU	European Union
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse gas
IEA	International Energy Agency
IUED	Improvised underwater explosive device
JCPOA	Joint Comprehensive Plan of Action
LNG	Liquefied Natural Gas
NOCs	Nationalized oil companies
NSS	National Security Strategy
OPEC	Organization of Petroleum Exporting Countries
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
SINOPEC	China Petroleum and Chemical Corporation
SLOC	Sea Lanes of Communication
SPR	Strategic Petroleum Reserve

TAPI	Turkmenistan-Afghanistan-Pakistan-India
TPP	Trans-Pacific Partnership
UNCLOS	United Nations Convention on the Law of the Sea

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I. INTRODUCTION

A. THESIS STRUCTURE

This thesis is designed to develop a comprehensive understanding of how energy security has shaped the geopolitical environment, and how energy-related considerations may influence the future relationship between the United States and China. For this understanding, we draw on a number of case studies from the twentieth century that saw energy issues directly and indirectly drive states' decisions to use military force, either in securing access to energy resources, or to leverage access to resources as a means of coercive diplomacy. After evaluating Chinese and U.S. policies, we will consider whether similar scenarios may develop in the twenty-first century between China and the United States, based on the historical analysis. The importance of this thesis is to identify potential friction points between these two countries, so that U.S. policies can be shaped to avoid conflict with China.

B. IMPORTANCE OF THE STUDY

The United States has played a large role in guaranteeing global access to energy markets through its peace and stability operations. Due to the pace of developments within the global energy market, an updated analysis of the current environment and future projections is of value to determine the market's strengths and potential weaknesses. If regional conflict is to be avoided, how should increased U.S. military, diplomatic, and economic prioritization of the Asia Pacific region affect America's energy security strategy? China's dependence on U.S. security of the Sea Lanes of Communication (SLOC) from the Persian Gulf region to Asia has been identified as a critical vulnerability and has resulted in Beijing taking actions which may result in conflict, or the potential disruption of the flow of energy resources through the SLOCs.[1]

[1] Michael Sliwinski, "Dire Straits: Naval Security Competition Between China and the United States in the Strait of Malacca," *Georgetown Journal of Asian Affairs*, 2014, 103–106, accessed July 20, 2015, https://m.repository.library.georgetown.edu/bitstream/handle/10822/712787/GJAA%201.1%20Sliwinski.pdf?sequence=1&isAllowed=y.

Within the 2015 *National Security Strategy* (NSS), Washington's list of national interests is:

> Security of the United States, its citizens, and U.S. allies and partners; a strong and innovative, and growing American economy in an open international economic system that promotes opportunity and prosperity; respect for universal values at home and around the world; and a rules-based international order advanced by U.S. leadership that promotes peace, security, and opportunity through stronger cooperation to meet global challenges.[2]

In pursuing these interests, Washington has listed eight "top strategic risks to our interests," which are intended to guide leadership in allocating limited resources to priority threats.[3] Within the listed threats, seven are relatable to energy security: "Catastrophic attack on . . . critical infrastructure; threats or attacks against . . . our allies; . . . widespread economic slowdown; climate change; major energy market disruptions; and significant security consequences associated with weak or failing states."[4]

Given the prioritization of energy-related strategic threats to national interests, it is worth examining what caused the U.S. shift to the Pacific and how it addresses these threats. China's actions are relatable to what Washington has identified as top priorities in national policy. As communicated in the NSS, "the United States welcomes the rise of a stable, peaceful, and prosperous China,"[5] but Beijing's aggressive actions in the East and South China Seas, ambiguity of China's territorial claims delineated in the nine dash line, Beijing's military buildup, its development of military logistics bases, and pursuit of a regional free-trade agreement (FTA), the Regional Comprehensive Economic Partnership (RCEP), which excludes the United States, can all be perceived as potential threats, as identified by the NSS. Understanding how and why states used force with regard to energy security may help to clarify how and why China is pursuing such actions, and whether U.S. policies in the region are applicable to the current environment.

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[2] White House, *National Security Strategy* 2015, 2.

[3] Ibid.

[4] Ibid.

[5] Ibid., 24.

C. HYPOTHESIS

Competition over energy-related territories has the potential to aggravate relations in the East and South China Seas, creating the potential for armed conflict between the United States and China. The U.S. pivot to the Pacific is a strategy that addresses possible drivers for China's energy security strategy and uses Washington's military posture to serve as a deterrent to China exercising military force to gain control of the SLOCs or control over disputed territory throughout the region, while maintaining military dominance in the region in the event of failed diplomacy. A review of the contemporary energy market will show that despite decreased energy intensity per unit of Gross Domestic Product (GDP), population and economic growth are producing energy demands that complicate energy security for import-dependent countries. In addition to demand growth, it is necessary to evaluate the issues that perplex energy security in order to account for the strengths and weaknesses of both Beijing and Washington's strategies. Relating the priorities listed in the NSS to this thesis, the U.S. strategy in the Pacific takes into account issues concerning cyber threats, energy resources, transportation vulnerabilities, the ensuing military buildup, access to Asia's market and climate change implications. Beijing's inescapable dependence on hydrocarbon imports makes ensuring access to energy through the Straits of Malacca and Hormuz an indispensable objective. As a result, China has approached the issue of energy security by diversifying its energy portfolio and developing a military capability to protect its national interests. In addition to potentially challenging the U.S.'s position in the SLOCs, Beijing has included asserting sovereignty over potential energy reserves in disputed areas of the East and South China Seas as part of its diversification strategy. In order to avoid conflict, a diplomatic solution to territorial disputes concerning energy resources must be found and the United States should avoid employing coercive energy strategies concerning access to the Straits of Malacca and Hormuz.

The biggest obstacle to energy security is getting states to cooperate rather than compete over resources. Competition over market shares involves both importing and exporting countries by way of supply security and demand security, respectively. Exporters are competing with the emergence of alternative energy sources and with each

other over the world's consumer base in order to maximize profits and to maintain their ability to leverage supply as a tool of coercive diplomacy; greater market shares equate to increased profits and greater influence in the international community. Importers are competing over access and/or control of energy resources, control being considered the more secure form of energy security.

Supply security is a term that will be used to describe measures taken by states to secure continued access to import supplies and limit the influence and impact that exporters can exert on net importers. The United States' use of an oil embargo on Japan in World War II and subsequent use of oil as a strategic weapon; the 1973 Arab oil embargo; and Russia's evolving relationship with Europe in the post-Cold War era—all are examples of the use of supply controls to exert diplomatic pressure on target states, and all ultimately failed to produce the desired results. Insights gleaned from these examples also include two instances of states using military force to gain control of resource-rich territories. Applying these examples to tensions resulting from territorial disputes and threats to SLOCs access in the Asia-Pacific region provide three scenarios of potential conflict between the United States and China: first, if the United States attempts to exert diplomatic pressure on China by leveraging control of the Straits of Malacca and Hormuz; second, if China attempts to exert control over the Straits of Malacca and/or Hormuz; and lastly, territorial disputes over resource-rich areas in the Asia Pacific region involving U.S. collective defense treaty allies.

Strengthening economic and military ties with regional actors in the Asia Pacific allows the United States to increase its influence in Asia's growing market and provide a deterrent base for weaker states against Beijing's aggressive behavior. An assumption made in this thesis is that China will not engage the United States directly over territorial disputes due to the disparity in military capabilities, but would potentially resort to violence in the event of supply disruption by Washington. The peaceful rise of China depends on how Beijing and Washington settle territorial disputes in the region and issues concerning security of the SLOCs. Recommendations for a diplomatic agreement

concerning sovereignty rights in the East and South China Seas, development of a multilateral cooperative security arrangement for the SLOCs, and protectionist policies for shale infrastructure in order to stabilize market price are detailed in Chapter four of this thesis.

Analyzing the current energy market is necessary to understand the variables affecting geopolitics with regard to energy security. Answering why states used force in the pursuit of energy security in the three case studies reveals rational decisions, based on their given geopolitical environment and calculations of acceptable risk. The variables affecting Beijing and Washington's calculus are grouped in this thesis by issues, deterrents, and areas of cooperation.

D. ISSUES

This section of the thesis covers issues that were encountered during research. The historical examples used in this thesis use declassified, promulgated, and translated information that is not as readily available for the selected topic of study. Current policies and the associated decision making process have not been released, declassified, or translated to the level of the case studies. For example, during the time of research, the Trans-Pacific Partnership (TPP) and RCEP were still under development and had not promulgated details of the regional FTAs. Without a finalized framework, analysis is limited to deduction of how the free trade agreements would potentially impact the global market and increase Washington's stake in Asia. Similarly, Beijing and Washington's policies are relatively new and do not have extensive literature exploring their implications on the geopolitical and energy security environment. Projections concerning future demand, production, and energy-mix data cannot account for major changes that may occur over a 15-year period, such as the 2011 Tohoku earthquake's effects on the Fukushima Daiichi nuclear power plant that altered Japan's energy infrastructure, or technological advancements like horizontal drilling and hydraulic fracturing that increase production. The deterrents section of this chapter is limited to unclassified material and existing knowledge concerning Chinese plans and current military capabilities; a better understanding of the Anti-Access/Area Denial (A2/AD) environment would provide

better insight into possible deterrent considerations for both countries. The A2/AD environment refers to a military operation's area that has been subject to weapons systems designed to degrade or deny the use of platform systems or deny force access to geographic areas. For example, the use of electromagnetic pulse technology or cyber intrusion of force communications network would degrade U.S. force capabilities operating in the area. Knowing whether the United States possesses capabilities to counter China's cyber force and missile defense would be invaluable in determining how Washington may move forward in the event of direct confrontation with Beijing. This is not to say that these issues invalidate this thesis, but it is worth noting that they were limiting factors on the amount of information available and are also based on variables that are subject to change.

E. METHODOLOGY/SOURCES

The methodology used in this thesis draws on historical analysis to identify circumstances that led to states using force to gain control over energy resources and/or coercive diplomacy to influence policies of target states. From this analysis, it is possible to deduce potential friction points between Washington and Beijing, given their current policies and actions in the geopolitical and energy security environment.

First, this thesis discusses the current environment in order to develop an understanding of what variables are influencing policy makers' decisions. Second, the following three case studies will be analyzed: Washington's use of energy diplomacy and energy as a strategic weapon against Japan in World War II; the 1973 Arab oil embargo; and Russia's evolving relationship with Europe in the post-Cold War era. Third, build upon the case findings to deduce possible implications in the current environment. Finally, this thesis will provide policy recommendations to prevent conflict.

This thesis draws its research from scholarly works, policy documents, news reports, government websites, congressional research reports, and independent resource institutions. Foreign sources are limited to available translated texts and analysis based upon translated work.

II. LITERATURE REVIEW

The purpose of this literature review is to familiarize the reader with essential background information, discuss what work has already been done on the topic, and describe how this thesis adds to the existing literature. An overview providing essential information concerning the current geopolitical and energy security environment will be divided by issues, deterrents, and areas of cooperation. Then, a summary of the existing literature explaining implications of the U.S. prioritization of the Asia Pacific region and the current energy security environment will be discussed, followed by an explanation of how this thesis contributes to the field.

A. ISSUES

Competition over the energy resources required to supply today's 7.1 billion people has the potential to become more volatile, as the world's population increases to an expected 8.3 billion by 2030; the associated growth in demand will generate additional pressure on states to secure the world's limited supply.[6] Government policies developed to secure these resources will be based on the calculus of acceptable costs and risks associated with their energy mix. This section will discuss the strengths and weaknesses of energy sources, transportation issues, and economics in order to understand their influence in a state's decision-making process.

Hydrocarbons, in the form of oil, gas, and coal, are responsible for meeting a majority of the world's primary energy needs. Each of these commodities possesses natural characteristics that make them more or less applicable to various sectors within the energy mix. The term energy mix is used to describe the proportion of a state's total energy generation that is provided for by a particular energy source; for example, within the total demand for electricity in a given state, nuclear power, fossil fuels, and renewables are each responsible for a portion of total generation. Issues of

6 "Global Trends 2030: Alternative Worlds," Office of the Director of National Intelligence, December 2012, 31, accessed September 15, 2015, http://www.dni.gov/files/documents/GlobalTrends_2030.pdf.

transportability, price, availability, and acceptable environmental costs are variables that influence how these resources are used. The use of renewable energy sources, such as wind, hydro, solar and the use of nuclear power are gaining market shares within the energy system; however, they are limited by their price comparison to hydrocarbon, human capital requirements, and environmental conditions that limit their applicability and inconsistent power outputs. For the purpose of this thesis, discussion of a state's energy mix will be limited to the transportation sector and stationary power generation. The general trend among countries is their inability to meet demand with domestic production. Dependence upon energy imports carries the inherent risk of disruptions, which have shaped the world's energy security norm of diversifying import sources, diversifying energy sources, creating demand-side controls, and establishing strategic petroleum reserves with disruption mitigation plans.

Petroleum dominates the transportation sector, as the difficulty in using coal or gas to fuel automobiles, aircrafts, and ships will ensure transportation continues to generate more than half of the world's petroleum demand.[7] Being an energy-dense-liquid allows oil to be more versatile, mobile, and storable than other energy sources.[8] As of 2013, the world's proven petroleum reserves were estimated at 1.64 trillion barrels, of which the Middle East accounted for 49%, Central and South America 20%, North America 13%, Africa 8%, Eurasia 7%, and Asia 3%.[9] The issue that these statistics present is that the world's largest consumers of petroleum are becoming increasingly dependent upon volatile regions of the world to meet their demand. This case is especially true for the Asia-Pacific region, only accounting for only 3% of the world's proven reserves; it represents the largest demand growth and is projected to increase

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[7] Ian Cronshaw and Quentin Grafton, "Reflections on Energy Security in the Asia Pacific," *Asia & the Pacific Policy Studies Asia and the Pacific Policy Studies* 1, no. 1 (2013): 134, doi:10.1002/app5.4.

[8] Thomas Birtchnell, Satya Savitzky, and John Urry, *Cargo Mobilities: Moving Materials in a Global Age* (New York: Routledge, 2015), 184.

[9] Ron Patterson, "World Proved Oil Reserves Data a Work of Fiction," Oil Price, December 9, 2014, World Oil Reserves by Region, accessed January 15, 2016, http://oilprice.com/Energy/Crude-Oil/World-Proved-Oil-Reserves-Data-A-Work-Of-Fiction.html.

another 30% between 2010 and 2035.[10] The general trend of increasing demand will generate competition among consumers, as limited global production capacity will not be able to keep pace; some projections forecast that Saudi Arabia, which possesses the world's second-largest proven oil reserves, may become a net importer of oil by 2037, based on demand and production growth.[11] The difficulty in fuel switching transportation sectors toward alternative energy sources makes it difficult for states to avoid increased reliance on oil.

Natural gas is more difficult than oil to extract, store, and transport, but is more abundant and widely distributed throughout the world than petroleum. These characteristics make it an economical alternative to petroleum for power generation.[12] As of 2014, gas had a 23.7% stake in the global primary energy mix and is expected to increase steadily over the next two decades.[13] Despite having a greater share of the world's natural gas reserves than it does oil, China is still dependent on more than 40% of its natural gas imports to meet demand. Natural gas burns cleaner than other hydrocarbons and offers a reduced environmental cost in meeting energy requirements.[14] As in the case of oil, net importing states are becoming more vulnerable to supply disruptions as they grow increasingly dependent upon gas imports. A weakness of gas is due to its physical characteristics requiring pressurized systems for transport. The increased capital and labor associated with pressurizing pipelines and required liquefied

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[10] Cronshaw and Grafton, "Reflections on Energy," 131.

[11] "Global Trends 2030," 75.

[12] Bruce Jones, David Steven, and Emily O'Brien, *Fueling a New Disorder? The New Geopolitical and Security Consequences of Energy*, Brookings Institute, Brookings, March 2014, 6, http://www.brookings.edu/~/media/research/files/papers/2014/04/14-geopolitical-security-consequences-energy-jones/14-geopolitical-security-energy-jones-steven_fixed.pdf.

[13] "BP Statistical Review of World Energy 2015 June 2015," *BP Statistical Review of World Energy* 64 (June 2015): 4, accessed January 5, 2016, https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf.

[14] Ji Guoxing, "Energy Security Cooperation in the Asia Pacific," *Korean Journal of Defense Analysis* 8, no. 2 (1996): 276, accessed September 10, 2015, doi:10.1080/10163279609464566.

natural gas (LNG) infrastructure on both the supplier and importer ends of maritime transport is a factor that has limited its rate of growth in the energy mix.[15]

Coal is more evenly dispersed than other hydrocarbons, but comes at an increased cost to the environment and is limited to stationary power generation. A 2014 British Petroleum report estimates that North America accounts for 27.5%; South and Central America 1.6%; Europe and Eurasia 34.8%; the Middle East and Africa 3.7%; and the Asia-Pacific region 32.3% of proven coal reserves.[16] Coal accounts for a 30% stake of the world's primary energy mix.[17] Coal's physical characteristics make it easy to transport, store, and use in electricity production, but it is the most carbon-intensive source of power generation of all energy resources and requires the implementation of Carbon Capture and Storage (CSS) technology to meet climate change initiative targets.[18] The capital required to close less efficient coal plants, retrofit them with CSS, or build new, more efficient plants makes it increasingly difficult for developing countries to prioritize climate change over providing electricity to their citizens. Despite China's large coal deposits, its economic development over the last three decades resulted in it becoming a net importer of coal in 2009, in response to the associated increase in energy demand; import data from 2009 to 2012 indicate that despite becoming the world's largest importer of coal, it only accounts for 10% of Beijing's total coal demand.[19] With Asia representing the largest growth in energy demand and carbon emissions through the foreseeable future and coal being a hydrocarbon of convenience, it will become increasingly difficult to steer developing economies toward more expensive green technology.[20]

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15 "Energy Supply Security: Emergency Response of IEA Countries 2014," International Energy Agency, 2014, 53–6, accessed January 1, 2016, https://www.iea.org/publications/freepublications/publication/ENERGYSUPPLYSECURITY2014.pdf.

16 "BP Statistical Review," 5–30.

17 Ibid.

18 "Coal," International Energy Agency, About Coal, accessed January 20, 2016, http://www.iea.org/topics/coal/.

19 Cronshaw and Grafton, "Reflections on Energy," 134.

20 "China," U.S. Energy Information Administration, May 14, 2015, Overview, accessed August 20, 2015, https://www.eia.gov/beta/international/analysis.cfm?iso=CHN.

Compared to hydrocarbons, nuclear power offers a carbon-free power generation source, but carries the risk of radiological contamination. With construction periods of approximately 20 years and substantial financial requirements to build, operate, and maintain plants, many countries lack the human capital and technology to consider nuclear power as a near-term solution.[21] While peaceful nuclear programs do not necessarily factor heavily upon neighboring countries evaluating their security environment, the latent capability brings to question the necessity of nuclear infrastructure, as in the case of Iran. Because of this, there is extensive literature discussing controlling supply as being the most practical means of nonproliferation and the spread of peaceful programs to the developing world presents a problem set beyond the scope of this thesis.[22] The spread peaceful programs can be expected to mirror the guidelines established by the Joint Comprehensive Plan of Action (JCPOA) and would have further implications on the issue of nuclear proliferation. Modest in comparison to other energy sources, nuclear power only accounts for 4.4% of the word's primary energy mix and has been slowly gaining market shares since 2009.[23] In light of recent developments concerning the JCPOA and Saudi Arabia's 2011 announcement to build "no fewer than sixteen nuclear power plants at an estimated cost of over $100 billion," nuclear power has the potential to alleviate oil exporters' growing energy needs, extend the life of their hydrocarbon exports, and power water desalination plants.[24]

The development of an economically viable biofuel that can be mass produced without forfeiting feedstock crops has the potential to impact the transportation sector where other forms of energy cannot.[25] Currently only representing 1.8% of global oil usage, the two-million-barrels-per-day production is limited by the choice of feedstock

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[21] Daniel Moran and James A. Russell, *Energy Security and Global Politics: The Militarization of Resource Management* (London: Routledge, 2009), 39.

[22] Joseph Cirincione, *Bomb Scare: The History and Future of Nuclear Weapons* (New York: Columbia University Press, 2007), 15.

[23] "BP Statistical Review," 5.

[24] Yoel Guzansky, "The Saudi Nuclear Genie is Out," *The Washington Quarterly* 38, no. 1 (2015): 93–96, accessed July 10, 2015, doi:10.1080/0163660x.2015.1038176.

[25] Cronshaw and Grafton, "Reflections on Energy," 134.

crops over fuel crops.[26] Continued funding for research and development (R&D) is among the priorities listed in President Obama's "all of the above energy strategy."[27] The United States Navy recently contracted for 77.6 million barrels of biofuel at $2.19 per gallon, which is currently being used in the Great Green Fleets 2016 Asia-Pacific deployment as a 10/90 mix ratio.[28] Mandated by congress, the requirements to be economical compared to conventional fuel and able to be used as a drop-in fuel without engineering modifications have been met; further developments to reach the goal of a 50/50 blend could provide a significant strategic advantage to the United States.[29]

Wind, hydro, solar, and geothermal make up the renewable energy sector and collectively account for 6% of the world's power generation.[30] While this number is modest in comparison to other forms of energy production, the sector collectively accounted for nearly half of the world's new power generation capacity in 2014.[31] The issue facing the sector, in an environment of lower oil and gas prices, is staying economically competitive and it has unfortunately suffered from global investment stagnation as a result.[32] In the long term, renewables will play an increasingly important role of decreasing reliance on energy imports and reducing carbon emissions; International Energy Agency (IEA) projections into 2030 anticipate modest growth, but show an appreciable increase by 2050, accounting for up to 12%-25%.[33] Output variability due to weather conditions will be increasingly factored into the renewables

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[26] Cronshaw and Grafton, "Reflections on Energy," 134.

[27] "Advancing American Energy," The White House, Developing Clean Fuels, accessed January 24, 2016, https://www.whitehouse.gov/energy/securing-american-energy.

[28] Meghann Myers, "Navy Deploys First Biofuel-Powered Great Green Fleet to Asia-Pacific," Navy Times, January 21, 2016, 1, accessed February 5, 2016, http://www.navytimes.com/story/military/2016/01/20/stennis-strike-group-sets-sail-10-percent-beef-fat-fuel-blend/79054624/.

[29] Ibid.

[30] "BP Statistical Review," 5.

[31] "World Energy Outlook 2015: Executive Summary," International Energy Agency, 2015, 1, accessed January 15, 2016, https://www.iea.org/Textbase/npsum/WEO2015SUM.pdf.

[32] Jones et al., *Fueling a New*, 7.

[33] "Global Trends 2030," 38.

equation in light of climate change and the effects it will have on hydro sources, solar exposure, and wind patterns.

Growing dependence upon energy imports are linked to the vitality of the world's transportation infrastructure, both of which rely on the United States to maintain its security commitments to policing the SLOCs and providing stability in the Persian Gulf region.[34] The perception of waning U.S. commitments to providing security in the Gulf and SLOCs has been influenced by several developments. First, increased domestic production in the United States resulting from the shale revolution has reduced its dependence upon petroleum imports, specifically from the Gulf States; second, budgetary constraints bring into question the U.S.'s ability to sustain operations in the Persian Gulf and SLOCs; finally, the U.S. rebalance to the Asia-Pacific is perceived as the United States reducing its security commitments to the Gulf region.[35] In an environment which has traditionally depended upon the United States to provide security and access for the benefit of the global economy, the perception of a possible withdrawal has had an impact upon importing states' considerations.

1. Transportation Vulnerabilities

The maritime transport system comprises "approximately 112,000 merchant vessels, 6,500 ports and harbor facilities, and 45,000 shipping bureaus . . . linking roughly 225 coastal nations. . ."[36] This system facilitates the flow of approximately two-thirds of the world's produced petroleum and is a vital lifeline to the world's economy.[37] The remaining one-third use pipelines, trains, and trucks to cover smaller distances.[38]

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[34] Robert Sutter, "China and America: The Great Divergence?,"*Orbis* 58, no. 3 (May 2014): 375, doi:10.1016/j.orbis.2014.05.004.

[35] *Pivot to the Pacific? The Obama Administration's "Rebalancing" Toward Asia*, by Mark Manyin, Stephen Daggett, Ben Dolven, Susan Lawrence, Michael Martin, Ronald O'Rourke, and Bruce Vaughn, Cong. Rept. 7–5700, 15.

[36] Berube, Claude G. Maritime Private Security: Market Responses to Piracy, Terrorism and Waterborne Security Risks in the 21st Century. London: Routledge, 2012. 161–162.

[37] Rodrigue, Jean-Paul. "Straits, Passages and Chokepoints." *Cahiers De Géographie Du Québec*, 2004, 357. doi:10.7202/011797ar. 357–358.

[38] Ibid., 364.

Chokepoints along the established transit routes are limited in capacity due to geographical features and results in the convergence of energy exports from various suppliers into essentially one common source. In 2010, approximately 76% of the Middle East's petroleum exports went to Asia, as a result of growing demand in the region, resulting in an increased dependence upon two primary chokepoints, the Straits of Hormuz and Malacca.[39] Importing from a number of different suppliers, helps limit the effects of possible disruption from one or two suppliers, but offers limited security against a concerted disruption, or a disruption of a maritime chokepoint. The world has seen a general decline in maritime piracy, down to 245 incidents in 2014 from 445 in 2010, but the Asia-Pacific region has maintained a relatively consistent number of incidents over the same period.[40] Overlapping policies governing the waters of the Strait of Malacca create security issues that result in inefficient policing of the waterway. Sovereignty considerations have prohibited participation of external powers and private security firms from policing the strait, leaving it vulnerable to piracy and potential disruption, as current policies prevent Malaysian, Singaporean, and Indonesian law enforcement assets to cross into each other's territory.[41]

The expansion of ground transport by way of roads, railways, and pipelines have created alternate routes that limit vulnerability and port congestion by bypassing maritime chokepoints, but are limited in capacity compared to maritime bulk and are still subject to similar vulnerabilities. The fixed and linear nature of ground transport presents an easy target due to the difficulty in protecting thousands of miles of transport infrastructure.[42] Development of ground transportation is often hampered by multilateral

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[39] David Isaak, *Oil Security Issues in Asia and the Pacific,* working paper no. 400, July 2014, Abstract, accessed July 5, 2015, http://www.adb.org/sites/default/files/publication/42681/ewp-400.pdf.

[40] *Piracy and Armed Robbery Against Ships*. Report. January 2015. accessed November 2015. http://www.hellenicshippingnews.com/wp-content/uploads/2015/01/2014-Annual-IMB-Piracy-Report-ABRIDGED.pdf. 5

[41] Berube and Claude, *Maritime Private Security*, 53–54.

[42] Birtchnell et al., *Cargo Mobilities*, 183.

coordination efforts between suppliers, transit states, and the end importers and often results in transit routes that are less economical in order to bypass potential belligerent states.

2. Economics

There is no single quantifiable correlation between economic growth in terms of GDP to energy demand, greenhouse gas emissions, and oil prices, but studies note that they are interrelated and vary on a country-to-country basis.[43] The underlying assumption within existing literature is that economic development requires energy resources to sustain growth. Energy prices are simply driven by supply and demand in a feedback-type system where energy commodity prices affect demand: low prices are a result of an oversupply relative to demand and vice versa, higher energy prices negatively affect demand growth and drive the development of alternative supplies, which have the potential to reduce the world's market share of hydrocarbons, thus reducing dependence on exporter supply.[44] The contemporary geopolitical environment is becoming increasingly globalized; the development of alternative transportation routes, development of additional petroleum sources, diffusion of technology and energy efficiency policies are examples of variables which impact global trade and degrades the effectiveness of energy as a tool of coercive diplomacy.[45]

The precipitous change in crude prices from highs above $100 in 2012, to below $40 at the time of research, is due to several factors: first, a weakening global economy has reduced energy demand growth; secondly, increased petroleum output resulting from North America's shale revolution and the lifting of sanctions on Iranian oil; and finally, competition over market shares among producers and against alternative sources, which

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[43] Mohammed Abubakar, Fuad Agayev, and Mustafa Ilkan, "Energy Demand Interplay with Real GDP and Oil Prices," *Advances in Management & Applied Economics* 3, no. 4 (2013): 96, accessed January 5, 2015, http://www.scienpress.com/Upload/AMAE/Vol%203_4_9.pdf.

[44] Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Simon & Schuster, 1991), 717–718.

[45] Joint Chiefs of Staff, *The National Military Strategy of the United States of America 2015,* 1.

became economical in an environment of high crude prices.[46] The world's crude oil supply is currently oversupplied by a production rate of approximately 2.10 million barrels per day (b/d) and shows no signs of immediate growth in demand or reductions in production in the short term.[47] Price manipulation by suppliers is also a cause for concern, as groups like the Organization of the Petroleum Exporting Countries (OPEC) and Russia's gas consortium have the potential to leverage large market shares of hydrocarbon resources as a tool of coercive diplomacy or to simply raise prices, which their governments have become heavily dependent upon.[48,49] Hydrocarbon exports represent a large percentage of major exporter economies, specifically the Gulf states and Russia, whose domestic stability is dependent upon subsidies to placate their populations: Yemen $200, Iran $136-$150, Libya $111, Saudi Arabia $50-$90 per barrel of crude.[50] Oil prices below these breakeven prices will result in budget deficits that have the potential to aggravate an already volatile region further. A concern for North America's shale production is that competition over market shares has kept prices below the general break-even cost, but increased efficiency, new technology, new techniques, reduced costs, and continued external investments have prevented a dramatic decrease in U.S. production.[51] In 2014, production costs for shale were $70 per barrel when oil prices averaged $115 per barrel on the market. Sub-profitable market prices, compared to production costs have resulted in a stagnant growth of horizontal wells and a modest decrease in production. The end result, however, has left the more efficient wells in operation, as new estimates place shale production below $30 per barrel, excluding

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46 Art Berman, "OPEC Production Cut Unlikely Until U.S. Oil Output Falls Another Million Barrels Per Day," Forbes, February 10, 2016, 1–5, accessed February 11, 2016, http://www.forbes.com/sites/arthurberman/2016/02/10/opec-production-cut-unlikely-until-u-s-production-declines-another-million-barrels-per-day/#268ed5285739.

47 Ibid.

48 Ira Sohn, "Energy-Supply Security and Energy Intensity: Some Observations from the 1970–2005 Interval," *Minerals & Energy*23, no. 4 (December 2008): 188, accessed January 20, 2016, http://search.proquest.com/docview/58829289?accountid=12702.

49 "Energy Supply Security: Emergency," 16.

50 Song Seongjong, "The Shale Revolution, Its Geopolitical Implications, and a Window of Opportunity for Northeast Asia," *The Korean Journal of Defense Analysis* 27, no. 1 (March 2015): 9–16, accessed December 20, 2015, http://search.proquest.com/docview/1735652938?accountid=12702.

51 Berman, "OPEC Production Cut," 1–6.

financing costs.[52] Despite diminishing profit margins, continued investment and government policies supporting enhanced oil recovery development will potentially stabilize production costs between $44 and $68 per barrel by 2020.[53]

Increased competition in today's energy market is at risk of becoming increasingly militarized as territorial disputes challenge international norms in order to gain control over potentially energy-rich areas.[54] Both importing and exporting nations are competing over market shares in order to protect their economic longevity and security as the world's increasing demand reduces available export production. Diversifying import sources provides limited security because they are inherently vulnerable to physical disruptions or manipulation due to the vulnerability of the transportation system. By gaining control over resource production, rather than contract arrangements, states are able to mitigate some of the geopolitical risks associated with production manipulation and transportation issues, and it allows them to draw 100% of production, rather than settling for percentages of production. Control over production has limited utility in protecting states from price fluctuations in a globalized system; even if the United States was able to achieve energy independence, its domestic price would reflect that of global markets.[55] Despite a decreased dependence upon energy imports from the Middle East, stability in the region is still vital to the world's economy and will remain in the purview of Washington's policies.

The use of embargos and sanctions are forms of coercive diplomacy that have been instrumental in U.S. foreign policy in forcing compliance of belligerent states without necessarily using military force.[56] Multilateral sanctions have been effective in

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[52] Steve Austin, "Oil Price in $20 Range and 6 Trends for the Year," Oil Price, January 21, 2016, Precision Horizontal Drilling, accessed February 5, 2016, http://oil-price.net/en/articles/20-dollar-oil-price-and-six-trends.php.

[53] Seongjong, "The Shale Revolution," 15.

[54] Caroline Daniel, "Kissinger Warns of Energy Conflict," Financial Times, June 2, 2005, 1, accessed August 15, 2015, http://search.proquest.com/docview/228947768?accountid=12702.

[55] Jones et al., *Fueling a New*, 10.

[56] Bruce Jentleson, "Coercive Diplomacy: Scope and Limits in the Contemporary World," The Stanley Foundation, December 2006, 1–3, accessed January 5, 2016, http://stanleyfoundation.org/publications/pab/pab06CoerDip.pdf.

the past, but the increasingly globalized economic system provides alternative outlets for target states to minimize the effects of targeted sanctions.[57] Multilateral sanctions placed on Angola, Libya, Syria, Sudan, and Iran had limited impact upon oil output and created windows of opportunity for foreign investments outside of the United States and Western powers.[58] Chinese, Indian, and Russian firms have taken advantage of sanction restrictions limiting Western companies' actions inside target states by heavily investing in energy infrastructure, absent of competition.[59,60] The dilution of sanction effectiveness caused by noncooperative states has a limiting effect on U.S. policy options.

Economic interdependence is another product of globalization and is argued to be a factor that binds world powers together as an effective deterrent to conflict.[61] Finalization of the TPP would allow the United States to establish trade rules reflective of Western values and create an environment of rules-based trade, which is conducive to U.S. markets.[62] Intellectual property rights would make it possible for developed countries participating in the framework to benefit the global community through technology sales, specifically in the field of clean energy technology. A goal of the TPP would be to eventually incorporate Beijing into the framework, which may be possible if the FTA gains enough support that not conceding to the agreement would come at an unacceptable economic cost to China.[63] The current signatory states of both FTAs can be represented by the percentage of the global economy that they would encompass: the TPP

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57 Jentleson, "Coercive Diplomacy," 4.

58 Jeff D. Colgan, "The Emperor Has No Clothes: The Limits of OPEC in the Global Oil Market," *International Organization* 68, no. 03 (2014): 611, accessed September 10, 2015, doi:10.1017/s0020818313000489.

59 Flynt Leverett and Jeffrey Bader, "Managing China-U.S. Energy Competition in the Middle East," *The Washington Quarterly* 29, no. 1 (2005): 196, doi:10.1162/016366005774859643.

60 Moran and Russell, *Energy Security*, 103.

61 Sutter, "China and America," 362.

62 Kim Inhan, "More Rebalancing to Come: Progress and Prospects of the U.S. Rebalance to the Asia-Pacific," *The Korean Journal of Defense Analysis* 27, no. 3 (December 3, 2015): 138, accessed December 5, 2015, http://search.proquest.com/docview/1761665500?accountid=12702.

63 "Free-Trade Pacts America's Big Bet," *The Economist*, November 15, 2014, 1, accessed January 5, 2016, http://www.economist.com/news/special-report/21631797-america-needs-push-free-trade-pact-pacific-more-vigorously-americas-big-bet.

encompasses 37% of global GDP and excludes China, while the RCEP would encompass only 30% and excludes the United States.[64] The TPP would allow the U.S. economy to grow in parity and maintain its relative advantage over China; the RCEP potentially reduces the salience of economic interdependence between the two powers, as Beijing would have established alternative outlets to facilitate economic growth. The United States has seen a decreasing percentage of global GDP over the last two decades, from 30% in 1999 to 23% in 2008, and is projected to account for less than 15% by 2030; gaining a foothold in the fastest-growing market in the world may reverse this trend.[65]

B. DETERRENTS

1. Cyber Vulnerability

Former Director of the National Security Agency and Director of National Intelligence, Mike McConnel, stated that, "the United States is fighting a cyber-war today, and we're losing."[66] Studying cyber vulnerabilities in depth is outside the scope of this thesis, but is discussed briefly to demonstrate critical infrastructure vulnerability. A 2009 article from the *Journal of Strategic Security*, suggests that China has developed a "cyber army" of up to 180,000 cyber spies, which has been linked to numerous cyber-attacks throughout the world.[67]

The development of a U.S. smart grid to increase the efficiency of power generation, transmission, and distribution to end users has been instrumental as a demand-side management tool for Washington.[68] The growing use of computer-based remote controls and automation throughout the electrical system has resulted in greater

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64 Meredith Lewis, "TPP and RCEP: Implications of Mega-FTAs for Global Governance," *Social Science Japan* 52 (March 2015): 12, accessed September 15, 2015, http://search.proquest.com/docview/1683078283?accountid=12702.

65 Seongjong, "The Shale Revolution," 7.

66 Magnus Hjortdal, "China's Use of Cyber Warfare: Espionage Meets Strategic Deterrence," *Journal of Strategic Security* 4, no. 2 (2011): 12, doi:10.5038/1944–0472.4.2.1.

67 Ibid., 10.

68 Siddharth Sridhar, Adam Hahn, and Manimaran Govindarasu, "Cyber-Physical System Security for the Electrical Power Grid,"*Proceedings of the IEEE* 100, no. 1 (January 2012): 210, doi:10.1109/jproc.2011.2165269.

energy efficiency, but has simultaneously created a critical vulnerability to U.S. infrastructure. Automation of monitoring, metering, and distribution control of the U.S. electrical grid is increasingly dependent upon digital systems to function, making them susceptible to cyber-attacks, which was demonstrated in 2009. The 2009 attack was later traced back to China, and revealed software had been installed throughout the network which enables the China to shut down the network at a later time.[69] Another example is the 2007 cyber-attack on Estonia, Pentagon cyber security expert, Sami Saydjari, noted that a similar mass cyber-attack on the United States could leave the country without power for up to six months.[70] In December 2007, President Obama approved Title XIII of the Energy Independence and Security Act, which established a Smart Grid Task Force comprised of 11 federal agencies.[71] Designed to streamline interagency implementation of policies and practices regarding further development of the smart grid, it has identified seven key principles for the future of the electrical grid, which includes the ability to self-heal in the event of power disturbance events and the ability to operate resiliently against physical and cyber-attacks.[72] Domestic policies that help manage energy demand are important to this thesis because they help reduce U.S. reliance on hydrocarbon imports. China's demonstration of cyber capabilities to disrupt critical infrastructure is cause for concern to policy makers and requires further study and resources to achieve system resilience and security. The potential for energy disruption by cyber intrusion adds a new dynamic to the militarization of energy security.

Cyber espionage, which targets technical information from U.S. industries and federal agencies, degrades the U.S. economic advantage and compromises its military capabilities. The theft of intellectual property, which includes trade secrets and designs, makes it increasingly difficult for America to capitalize on its relative technological superiority when states like China are able to copy the product of R&D, while foregoing

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69 Hjortdal, "China's Use of Cyber," 8.

70 Ibid., 9.

71 "Smart Grid," Energy.gov, Legislative Mandates, accessed February 10, 2016, http://energy.gov/oe/services/technology-development/smart-grid.

72 Ibid.

the required expenses and time. James A. Lewis, the Program Director at the Center for Strategic and International Studies, describes Beijing's cyber espionage as, "a program aimed at getting high-tech information and politically sensitive information- the high-tech information to jump-start China's economy and the political information to ensure the survival of the regime."[73] The TPP would enforce an international norm of intellectual property rights and would enable a more integrated and competitive U.S. economy the Asia-Pacific region. U.S. efficiency standards and R&D have resulted in increasingly efficient engines, motors, batteries, and energy resource extraction techniques and technology, which have the potential to assist in reducing greenhouse emissions from the region and serve as a demand-side control that governments could use to reduce reliance on energy imports.[74] The TPP potentially brings the Asia Pacific participants in line with the U.S.-led Environmental Goods Agreement in 2014, which promotes free trade of environmental goods.[75] Theft of information relating to energy-related technology and the proposition of the RCEP is another example of China's noncooperative policies.

Cyber espionage also includes infiltration of vital military assets and theft of military designs, which are vital to Department of Defense (DoD) operations that provide security in the Middle East and freedom of navigation throughout the SLOCs. The 2009 hack of the Joint Strike Fighter program was traced to China and enables Beijing to possibly copy its design and develop capabilities and tactics to counter the airframe's capabilities.[76] Nearly every digital and electronic military system is vulnerable to a cyber-attack; Chinese strategists and doctrines target this vulnerability and advocate the use of viruses and hackers to paralyze an enemy's military capacity or ability to control its own forces in the event of a conflict.[77] China has also been engaged in conducting field exercises in "complex electromagnetic environments," which suggests that China

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[73] Hjortdal, "China's Use of Cyber," 12.

[74] "Climate Change," The White House, Leading by Example, accessed January 24, 2016, https://www.whitehouse.gov/energy/climate-change.

[75] Ibid., Promoting Free Trade in Environmental Goods.

[76] Hjortdal, "China's Use of Cyber," 9.

[77] Ibid., 3–7.

would employ disruptive technologies in the event of an armed conflict.[78] The United States has developed the Air-Sea-Battle concept, which prepares U.S. and ally forces to operate in an environment of A2/AD in anticipation of such an attack by China.[79] A2/AD tactics are being implemented in the Combined Task Force structure involving foreign militaries concentrated in the Asia-Pacific theater, the goal of which is to, "maintain freedom of action in the global commons, and secure operational access to enable concurrent or follow on joint operations."[80] The 2010 establishment of the United States Cyber Command allocates additional focus and resources to address the growing cyber threat to military operations.[81]

Beijing's aggressive actions have intensified in the twenty-first century and may become more emboldened as its military capabilities increase and as available energy resources decrease. Unclassified material does not detail America's capability in countering China's cyber threat, but doctrines focused upon operating in an A2/AD environment suggest that Washington has not developed a capable cyber defense. The United States and its allies may be prepared to operate in a restricted environment, but the potential for an attack on America's electrical grid may be an unacceptable cost.

2. Military Buildup

Security of the SLOCs and competition over resources has developed into a regional arms race in the Asia-Pacific region in an attempt to enhance SLOC defense and power projection capabilities.[82] Beijing's land-reclamation efforts, territorial claims in the East and South China Seas, military modernization, and cyber capabilities have been specifically developed to counter U.S. military capabilities and restrict access to the

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[78] Hjortdal, "China's Use of Cyber," 11.

[79] U.S. Department of Defense, Air-Sea Battle: Service Collaboration to Address Anti-Access & Area Denial Challenges (2013), 1, accessed January 10, 2016, http://www.defense.gov/Portals/1/Documents/pubs/ASB-ConceptImplementation-Summary-May-2013.pdf.

[80] Ibid, 1.

[81] "U.S. Cyber Command." U.S. Strategic Command. March 2015. accessed August 5, 2015. https://www.stratcom.mil/factsheets/2/Cyber_Command/.

[82] Guoxing, "Energy Security Cooperation," 291–292.

global commons.[83] China's policies do not explicitly express this, but acts of cyber theft, the 2013 establishment of an Air Defense Identification Zone (ADIZ) in the South China Sea, the purchase of the SS-N-22 Sunburn missile from Russia, and development of the Sizzler missile are specifically designed to counter U.S. Navy weaponry and defense systems; this potentially gives China area denial and anti-access capabilities before fully maturing its military.[84,85,86] Based on defense expenditures and known military capabilities, Beijing is projected to develop a modern military capability sometime between 2035 and 2050.[87] The disparity in power between China and rival claimants involved in territorial disputes make it difficult for the region's developing countries to deter or resist Beijing's pressure. Increased American presence and prioritization of stability in the Asia-Pacific region has helped to provide security reassurances to countries like the Philippines and Vietnam, who have been engaged in aggravated skirmishes with China over territorial claims. The "deepening bonds" section in the NSS and Joint Chiefs of Staff *National Military Strategy of the United States of America 2015*, includes a list of U.S. collective defense arrangement states, as well as others regional powers: Japan, South Korea, Australia, New Zealand, Philippines, Thailand, Vietnam, Indonesia, Malaysia, Singapore, Australia, Bangladesh, and Burma.[88,89] Enhancing relations throughout the region enables regional actors to draw upon America's superior conventional strength to deter Chinese aggression. The risk of an aggravated encounter between Beijing and a mutual defense ally over resources has the potential to result in armed conflict between China and the United States. Cooperation with regional states

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83 Joint Chiefs, *The National Military*, 3.

84 Sunburn Missile *China: Ballistic and Cruise Missiles*, by Shirley Kan, Cong. Rept. 97–391-F (CRS), 20, accessed September 1, 2015, http://www.pennyhill.com/jmsfileseller/docs/97–391.PDF.

85 "Missile Technology: Peril on the Sea," The Economist, January 10, 2010, 1, accessed September 5, 2015, http://www.economist.com/node/16295552/print.

86 Richard Fisher, "Toward a New Armed Peace: How Washington Can Best Deter China and Support Taiwan's Maritime Peace Initiatives," International Assessment and Strategy Center, January 25, 2016, 4, accessed February 1, 2016, http://www.strategycenter.net/include/docFormat_list.asp?docRecNo=1250&docType=0.

87 Ibid., 13.

88 White House, *National Security*, 7–24.

89 Joint Chiefs, *The National Military*, 9.

enhances Washington's ability to enforce international norms and also assists with finalizing the TPP. Asia's growing market is projected to account for half of the world's economic output by 2025; thus, exclusion from a regional FTA would be detrimental to America's economic prosperity.[90]

The DoD is currently facing a period of increased fiscal uncertainty, as the 2011 Budget Control Act has resulted in a military drawdown across the armed services and has forced the Joint Chiefs to prioritize modernization projects to shape the future force structure.[91] The risk of a future reduction in force size and capabilities is dependent upon future fiscal constraints, which are jeopardizing Washington's deterrent credibility.[92] Figure 1 illustrates regional trends in military expenditures in millions of dollars spent per year and is based on regional actors relevant to this thesis, with military expenditures of at least $25 billion to show relative military expenditures in U.S. dollar equivalents. Despite a reduction in military expenditures, the United States remains the world's dominant fighting force. Beijing's aggressive actions have led to the Association of Southeast Asian Nations inviting Washington into the region to deter Chinese diplomatic, economic, and military force.[93] Deviation from the traditional two-war force size construct may make it increasingly difficult for Washington to maintain sufficient forces in the Asia-Pacific region in the event of a military conflict.[94]

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90 Kim, "More Rebalancing," 341.

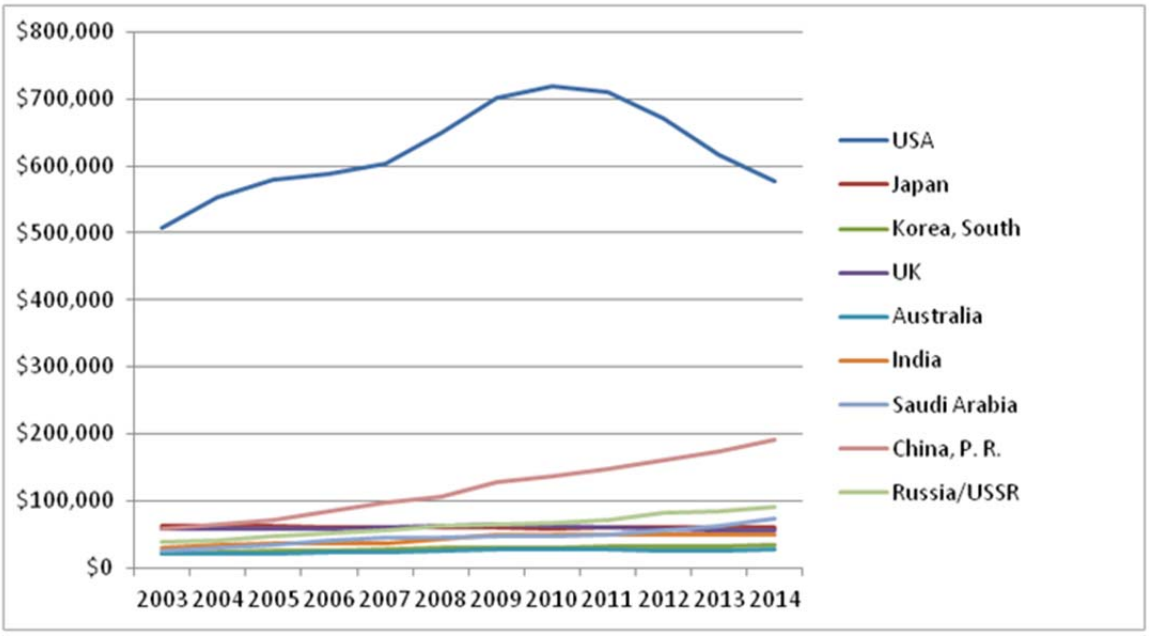
91 United States of America, Department of Defense, *Quadrennial Defense Review 2014*, by Chuck Hagel, III–XI.

92 Sutter, "China and America," 374.

93 Michael Green and Andrew Schearer, "Defining U.S. Indian Ocean Strategy," *The Washington Quarterly*, Spring 2012, 181, accessed January 5, 2016, doi:http://dx.doi.org/10.1080/0163660X.2012.666925.

94 Ibid., 182.

Figure 1. Regional military expenditure in $billions



Adapted from Stockholm International Peace Research Institute data.[95]

C. COOPERATION

Appealing to common interests, leveraging relative strengths, and economic interdependence have the potential to incentivize cooperation between China and the United States Climate change and antipiracy operations have been areas of cooperation between the two nations and proves that the capacity to cooperate exists. Two things are certain in the coming years: first, Middle Eastern oil will remain vital to the global economy despite America's increased production; and second, Middle Eastern oil is a vital ingredient to China's aspirations.[96,97] Stability in the Middle East and continued access to its hydrocarbon resources is a priority for both powers, which could potentially

95 "SIPRI Military Expenditure Database," Stockholm International Peace Research Institute, November 3, 2015, section goes here, accessed January 10, 2016, http://www.sipri.org/research/armaments/milex/milex_database.

96 Mamdouh G. Salameh, "Quest for Middle East Oil: The U.S. versus the Asia-Pacific Region," *Energy Policy* 31, no. 11 (2003): 1087, doi:10.1016/s0301–4215(02)00215-x.

97 Jacob Stokes, "After the Awakening: Future Security Trends in the Middle East," Center for a New American Security, January 10, 2014, 9, accessed January 5, 2016, http://www.cnas.org/after-the-awakening.

lead to a cooperative security arrangement. Cooperation between China and America may be limited to a few examples, but they are instrumental in reducing the potential for misunderstanding, confrontation, and conflict.[98]

1. Climate Change

Climate change has been gaining attention in recent years due its effect upon the physical environment, which led to the development of the United Nations Framework Convention on Climate Change and its Kyoto Protocol.[99] These treaties provide a legally binding framework requiring industrialized countries to reduce their greenhouse gas (GHG) emissions and assist developing nations in implementing clean technology in order to limit global temperature increases to two degrees Celsius by 2020.[100] The energy sector produces 60% of the world's GHG emissions, presenting a difficult problem set in a world of increasing energy demand. In order to reduce global emissions, policies and infrastructure must transition to cleaner technologies while simultaneously satisfying electricity generation requirements.[101] Despite international efforts, 60% of new power production from 2001 to 2011 came from lower efficiency, subcritical, coal-fired generation plants; a trend that, if continued, will close the two-degree goal by 2017, and require a three-year period of zero-emission developments in order to not exceed GHG output levels.[102] Temperature increases have accelerated the rate of urbanization, which is generating increased demands to offset adverse weather changes through heating and

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98 Kris Michaud, Joe Buccino, and Stephen Chenelle, "The Impact of Domestic Shale Oil Production on U.S. Military Strategy and Its Implications for U.S.-China Maritime Partnership," *Small Wars Journal*, March 14, 2014, 6, accessed August 5, 2015, smallwarsjournal.com/printpdf/15408.

99 Pragya Jaswal and Mitali Gupta, "Energy Demands and Sustaining Growth in South and East Asia Energy Demands and Sustaining Growth in South and East Asia," ResearchGate, March 2006, 24, accessed October 30, 2015, http://www.researchgate.net/publication/265004378_Energy_Demands_and_Sustaining_Growth_in_South_and_East_Asia_Energy_Demands_and_Sustaining_Growth_in_South_and_East_Asia_1.

100 "UNFCCC and Kyoto Protocol," United Nations, 1, accessed January 5, 2015, http://www.un.org/wcm/content/site/climatechange/pages/gateway/the-negotiations/the-un-climate-change-convention-and-the-kyoto-protocol.

101 Liwayway Adkins et al., "Energy, Climate Change & Environment: 2014 Insights," International Energy Agency, 2014, 9, accessed January 5, 2015, http://www.iea.org/publications/freepublications/publication/EECC2014.pdf.

102 Ibid., 15.

air conditioning.[103,104] The U.S. Energy Information Administration (EIA) estimates that the Arctic could hold up to 22% of the world's undiscovered conventional gas reserves and melt rates suggest that the area would be accessible for 110 days out of the year by 2030.[105] Increased access to potential undeveloped energy reserves could result in territorial disputes mirroring those in the Asia-Pacific region.[106]

Policy promoting energy efficiency is one of the effective ways to meet GHG emission goals.[107] Pollution charges, tradable permits, and elimination of government subsidy programs are examples of market-based instruments that incentivize transition toward cleaner and more efficient technologies.[108] Penalizing higher carbon emission electricity generation through direct taxes and incentivizing lower emissions by allowing sell-off of surplus carbon allowances to other firms, helps cleaner technology stay competitive in an environment of low-cost hydrocarbons. In order to meet the two-degree goal by 2020, changes must be made to existing infrastructure by way of retiring the world's least-efficient coal plants, retrofitting less-efficient coal plants, and retrofitting compatible coal plants with CCS.[109] These changes would have to occur at a rate requiring modifications or closures to occur before the end of a plant's planned lifetime, without degrading available electricity production below demand.[110] Climate change has resulted in a cooperative relationship between Washington and Beijing; both governments have worked together to produce policies and statements aimed at achieving post-2020 climate change targets.[111] The effects of climate change on the environment will exacerbate demand growth and create urgency to gain energy resources. Climate-

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103 DoD, *Defense Review 2014*, 8.

104 "Global Trends 2030," 49.

105 Ibid., 68.

106 Ibid.

107 "Climate Change," 1.

108 Robert N. Stavins, "Experience with Market-Based Environmental Policy Instruments," Resources for the Future, November 2001, 1–5, accessed September 20, 2015, doi:10.2139/ssrn.199848.

109 Adkins et al., "Energy, Climate Change," 9.

110 Ibid., 11.

111 "Climate Change," 1.

change management efforts have the potential to incentivize diversification of energy mixes to less hydrocarbon-dependent infrastructure in electricity generation and have the added benefit of reducing hydrocarbon dependence and GHG emissions.

There are a wide range of variables concerning energy security and its impact on state decisions. It is difficult to factor each of them equally, but it is worth noting their strengths and weaknesses in order to demonstrate that there is an effect on the decision-making process. Global concern for climate change has the potential to reduce GHG emissions through cooperation and technology-sharing, which would simultaneously have the effect of reducing demand, and thus dependence, on hydrocarbon imports. This would be true in a stagnant world, but population growth and growing economies are generating demand beyond the world's production capacity. This is generally true, but due to increased North American production, Iran's reintroduction into the market, and the global economic slowdown, there is a surplus in global production. Despite there being more than enough oil on the market to answer demands, competition over resources in the Asia-Pacific region remains. The only mechanism to diplomatically settle territorial disputes regarding legal rights to resources is based on adherence to international rules and norms of the United Nations Convention on the Law of the Sea (UNCLOS). Getting Beijing to concede to international demands to withdraw its excessive claims in the East and South China Seas, in accordance with the UNCLOS framework, would enable such a process to occur in the Arctic once it becomes more accessible, rather than presenting another tense geographic area. Economic interdependence and deterrence seem to be the limiting variables regarding a conflict between U.S. and Chinese forces, but an incident involving commercial and law enforcement assets may go beyond the intentions of both governments and result in conflict. In addition to competition over resources, Beijing is developing a logistical chain of bases along the SLOCs, spanning from the Indian Ocean into Asia, either out of fear of being denied access to resources or in an attempt to control the SLOCs itself. Losing access to the resource flow through the SLOCs is an unacceptable outcome for the global economy; any attempt to block or manipulate this resource will likely result in conflict.

D. EXISTING LITERATURE

President Obama's November 2011 statement, "Asia will largely define whether the century ahead will be marked by conflict or cooperation, needless suffering or human progress," aligns with the conclusions of many scholars and analysts.[112] The consensus among many scholars is that short of cooperation, conflict will result from competition over energy resources in the Asia-Pacific region, while others argue that there are sufficient stabilizing variables that will prevent conflict from emerging. Comparing these views with Aaron L. Friedberg's, "The Future of U.S.-China Relations: Is Conflict Inevitable?" will add international relations insight for both scenarios. Friedberg is a practiced politician, serving on the White House staff from 2003 to 2005, and is a respected authority on U.S.-Chinese relations.

Predictors of conflict gravitate toward elements of strategic vulnerability, expanding interests, increased military capabilities, and U.S. presence in the region as main drivers of conflict between the Beijing and Washington. Ji Guoxin, a Chinese academic, argues that energy deficiency throughout the Asia-Pacific region will result in conflict in the event of SLOCs' restriction or access denial to regional supplies or flow of resources.[113] Leverett Flynt, a former National Security Council member and academic, adds that China's growing power has enabled it to exercise influence throughout the Asia-Pacific region in ways that could lead to competition over control of the SLOCs.[114,115] Friedburg explains, through the lens of realist pessimists, that a combination of China's rising power, expanding aims, and the evolving tensions in the region could lead to conflict.[116] Following the historical example of rising powers conflicting with the status-quo, he elaborates that China is no different and hints about

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112 "Fact Sheet: The Fiscal Year 2014 Federal Budget and the Asia-Pacific," The White House, April 12, 2013, 1, accessed September 1, 2015, https://www.whitehouse.gov/sites/default/files/docs/asia_pacific_rebalance_factsheet_20130412.pdf.

113 Guoxing, "Energy Security Cooperation," 270–292.

114 Leverette and Bader, "Managing China-U.S. Energy," 187.

115 Moran and Russell, *Energy Security*, 212.

116 Aaron L. Friedberg, "The Future of U.S.-China Relations: Is Conflict Inevitable?," *International Security* 30, no. 2 (2005): 17–22, doi:10.1162/016228805775124589.

elements of increased latent power and the eventual transition to a capable military enabling Beijing's leadership to expand and pursue its national interests, "challenge territorial boundaries, international institutional arrangements, and hierarchies of prestige that were put in place when they were relatively weak."[117] In this case, control of the SLOCs or the threat of being denied access to the SLOCs will likely result in conflict. Salameh Mamdough, an international oil economist, concludes that the issue lies in China's approach to energy security being geostrategic, rather than geoeconomic. A greater emphasis on domestic policies, infrastructure, and investments that would increase efficiency, diversify supplies, and reduce demand could reduce Beijing's dependence upon the transit of energy resources through the SLOCs and reduce the probability of conflict.[118] Liberal pessimists would argue that this is due to the nature of China's authoritarian regime, conflicting policies, and differences between Communist and Democratic governments.[119] It is not likely that China's government will change, nor will its policies, putting it at odds with the United States in a cycle of "mutually reinforcing suspicions and fears," that could lead to conflict.[120] The *Global Trends 2030* report, a publication of the National Intelligence Council, concludes that conflict is likely due to the lack of a regional security framework that enables arbitration.[121] The UNCLOS provides a process for settling disputes concerning territorial claims, but Washington's absence from the agreement makes it difficult to enforce an international norm that it has not ratified. Inhan Kim, a political scientist, argues that Beijing's aggression is due to the perceived threat of U.S. containment, whose presence and policies are creating tension that could lead to conflict.[122] Through the constructivist pessimist lens, Thomas Burger adds that, "the chief source of instability in [Asia] today lies in the peculiar construction of national identity and interests on the part of the chief

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[117] Friedberg, "U.S.-China Relations," 19.

[118] Salameh, "Middle East Oil," 1085.

[119] Friedberg, "U.S.-China Relations," 29–33.

[120] Ibid., 31–33.

[121] "Global Trends 2030," 70.

[122] Kim, "More Rebalancing," 333.

regional actors."[123] It is due to these biased images of each other that trust and cooperation cannot be reached, even in areas of common interest.[124]

Taking the contrary view, other scholars believe that there are sufficient stabilizing variables that have prevented, and will continue to prevent, conflict. There is a common theme among optimists focusing on economic interdependence, international institutions, and the possibility of a democratic China all being factors which will continue to prevent conflict. Robert Sutter, an expert on U.S. policy toward the Asia-Pacific region, argues that continued relations will come short of conflict between China and the United States because both countries are growing increasingly interdependent, are preoccupied with domestic issues, and fear the prospect of mutual devastation.[125] Liberal optimists tend to agree that economic interdependence "creates shared interests in good relations between states," which will ultimately preserve peace and avoid conflict.[126] Liberal optimists also suggest that the increasing number of international institutions that both Washington and Beijing are members of will "improve communication between states, reducing uncertainty about intentions and increasing the capacity of governments to make credible, binding commitments to one another."[127] The biggest argument that liberal optimists make is that China is undergoing domestic changes reflective of the nascent stages of democratization, but it depends upon continued economic growth.[128] Russett and O'Neal's democratic peace theory suggests that a democratic China would not be inclined to fight the United States.[129] Bruce Jones, the vice president and director of the Foreign Policy program at Brookings Institute, offers an interesting view that Beijing realizes how dependent it is on U.S. security operations, specifically in the Middle East, and has expressed no desire to participate in security operations in the

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123 Friedberg, "U.S.-China Relations," 37.

124 Ibid., 38.

125 Sutter, "China and America," 367.

126 Friedberg, "U.S.-China Relations,," 12.

127 Ibid, 13.

128 Ibid., 15.

129 Bruce M. Russett and John R. O'Neal, *Triangulating Peace: Democracy, Interdependence, and International Organizations* (New York: Norton, 2001), 45–46.

region.[130] Realist optimists acknowledge China's growing power, but note that China will likely remain limited in aim and scope. Finally, realist optimists suggest the emergence of a bipolar system in Asia as Beijing's power continues to grow and create a "tense, but basically stable" environment.[131] As a result of increased U.S. production, Washington's policy options potentially include reducing its presence in the Middle East which would potentially illicit increased investments by China in securing access to resources from the region; by leveraging security of the Middle East, the United States may be in a position to engage in a more cooperative security arrangement.[132,133]

130 Jones et al., *Fueling a New*, 19.

131 Friedberg, "U.S.-China Relations," 28.

132 Alexandra Phillips, "The U.S. Shale Boom," *Harvard International Review* 35, no. 4 (2014): 6, accessed September 1, 2015, http://search.proquest.com/docview/1652372903?accountid=12702.

133 Jones et al., *Fueling a New*, 2.

III. UPDATING THE CURRENT ENVIRONMENT

A. CHOKEPOINTS

The EIA estimates that approximately 63% of the world's oil was transported along maritime routes in 2013.[134] Statistics like this highlight the global economy's need for and dependence upon maritime transport and the uninterrupted flow of commerce through strategic chokepoints. The physical characteristics of these key chokepoints limit the capacity that they can accommodate. Thus, as demand grows in Asia, the importance of areas like the Straits of Malacca and Hormuz increases. Traffic through these chokepoints carry oil from the Middle East to the Asian-Pacific area, where the demand for energy and goods overtook that of North America and Europe combined in 2010.[135] Any disruption to the flow of oil through these chokepoints could have potentially devastating effects on the global economy. There is a long history of states using the denial of territorial waters during conflicts or periods of increased tension between states; piracy and terrorism are the most likely means of disrupting the shipping system, because they are borderless organizations or cells that are difficult respond to with conventional force. The use of asymmetrical warfare, in the form of mines and improvised underwater explosives, is relatively cheap and results in physical destruction, as well as psychological effects. Issues of sovereignty, military policy, and the emergence of private security firms pose a series of overlapping and conflicting frameworks that hamper states' ability to secure these vital resources. The reality of the U.S. military's downsizing and the emergence of China as a growing global power offer an arena that could provide a cooperative rebalancing of security responsibilities in the Asian-Pacific region to ensure the security of global trade and energy security. The takeaway is that the global economy is dependent upon the uninterrupted transport of commercial goods and petroleum, and chokepoints provide a strategic point by which states, terrorists, and

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134 "World Oil Transit Chokepoints Critical to Global Energy Security." U.S. Energy Information Administration. December 1, 2014. accessed June 5, 2015. http://www.eia.gov/todayinenergy/detail.cfm?id=18991.

135 Isaak, "Oil Security Issues," 2.

pirates can potentially disrupt this chain and could cause catastrophic damage; these strategic points also overlap territorial waters, where sovereignty becomes an issue when outside forces attempt to provide security for the global good.

Discussing geographical constraints imposed upon several chokepoints ignores the implication of bordering country policies imposed on the region and will be covered later in this section.

The Straits of Malacca connect the Indian Ocean with the South China Sea, facilitating about 60,000 vessels annually; 20,000 of which are petroleum tankers from the Middle East.[136,137] At its most constrained point, it is 70-feet deep and 2.5-km wide. The closest alternative to this route is through the Strait of Sunda.[138] The fact that such a large volume of China's imports, specifically oil, transits through this chokepoint, gives it the potential to be a single point of failure for China's economy and its ability to meet its energy needs. The Strait of Hormuz links the oilfields of the Persian Gulf, the Gulf of Oman, and the Indian Ocean; while it is not as constrained geographically as the Strait of Malacca, traffic is limited to a 6-km-wide channel. Alternatives to the strait rely heavily upon pipelines throughout the region, but they are limited in capacity; a 2012 IEA estimate indicated that the Strait of Hormuz was a chokepoint for 20% of the world's exported oil.[139] Two other strategic locations worth mentioning are the Gulf of Aden and the Suez Canal. The Suez Canal is vital to Egypt's economy, as it is unidirectional and limited to several convoys per day. It also accounts for approximately $5 billion in revenue annually and bypassing this canal would require a 6,500-km detour around Africa. Twenty percent of the world's transported commerce passes through the Gulf of

136 Berube and Claude, *Maritime Private Security*, 53.

137 Isaak, "Oil Security Issues," 43.

138 Rodrigue, "Straits, Passages," 369.

139 "Strait of Hormuz is Chokepoint for 20% of World's Oil." U.S. Energy Information Administration. September 5, 2012. Accessed June 5, 2015. http://www.eia.gov/todayinenergy/detail.cfm?id=7830.

Aden and 12% of the world's oil. Studying the challenges posed by piracy in the region is useful in demonstrating maritime shipping's vulnerability to piracy.[140]

These locations become strategic points in the global economy; they become resources and points that can be controlled to leverage other countries, or manipulated to favor some countries over others. State-sponsored blockages or denial of use have been used in the past, but often elicit a global response and pressure to reopen these points. Piracy poses a minor disruption in the relative scope of volume distributed, but poses an economic impact in the form of minor delays and ransoms. Piracy is useful in highlighting the physical vulnerabilities of maritime shipping, as well as policy issues in terms of multinational cooperation. Terrorism poses the greatest threat to the maritime transportation system. Gaps in policy and contentions between regional actors and global powers limit the ability of outside and more capable powers, private or national, to ensure the security of such a vital lifeline. In 1956, Egypt sank ships inside the Suez Canal, effectively closing it until 1957, and again in the 60s, during the Six-Day War against Israel, it remained closed from 1967 to 1975.[141] Accommodating over 60% of the world's oil transportation, a closure or delay of the Straits of Hormuz and Malacca would have crippling effects on commerce, as well as the world's ability to meet its energy needs; a state-sponsored closure of one or both of these passages would draw the attention of the powers at hand.[142] The U.S. shale revolution has played a role in reducing America's dependence upon Middle Eastern oil and will play a part in future policy considerations, while many Asian countries are growing more dependent upon the uninterrupted flow of relatively cheap resources. An example of the cost differential between transporting oil through piping to circumvent a blocked passage can be demonstrated that oil shipped using the Baku-Deyhan pipeline averages an increase of between $1 and $2 per barrel, while transport by tanker through the Black Sea accounts

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[140] Berube and Claude, *Maritime Private Security*, 65.

[141] Rodrigue, "Straits, Passages," 367.

[142] Ibid., 365.

for $2 per barrel; with economies of scale being favorable, this amounts to considerable amounts of money and would still be limited to the capacity of alternate routes.[143]

Piracy throughout the twentieth century, and into the twenty-first century, has been of growing concern to policy makers and governments. In addressing this specific security concern, the politics involved in the Gulf of Aden and the Strait of Malacca result in a system that non-cooperative in security operations across sovereign boundaries. Refusal to accommodating external security services has resulted in an inefficient security system. While regional actors manage to simply allow or luckily manage the flow of commerce, they have not met the increased security needs of maritime transport through strategic waters that fall within their jurisdiction. Regional instability, poverty, and population marginalization, have empowered groups like Jamaah Islamiyah and Gerakan Aceh Merdeka increasing the potential threat terrorism poses to the Strait of Malacca; from 2002 to 2007, the region reported over 128 reported hit-and-run style robberies.[144] Attempts at establishing multilateral security arrangements in the Strait of Malacca took place in 2004 with the 2004 trilateral MALSINDO and 2006 Eyes in the Sky (EIS) programs form the Malacca Strait Patrol Network, but has been criticized as lacking sufficient resources and cooperation between the Singaporean, Indonesian, and Malaysian governments.[145] Surveillance planes aircraft under EIS are authorized to patrol into neighboring territories by three miles, while surface vessels are restricted to their respective countries territorial waters.[146] There is a general lack of coordination between the few actual patrols and hand offs between the EIS and surface assets in pursuit, as well as pursuits that cross into neighboring waters.[147]

In 2004, the Indonesian government vetoed an effort to place a U.S. military presence directly in the Strait of Malacca to help facilitate security and patrols. Malaysian

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[143] Rodrigue, “Straits, Passages,” 369.

[144] Berube and Claude, *Maritime Private Security*, 53–54.

[145] Ibid.

[146] Ibid.

[147] Ibid., 55.

Prime Minister Abdullah Ahmad Badawi responded by stating, "I think we can look after our own area."[148] As a failed state, Somalia has housed a pirate epidemic that plagues the Gulf of Aden's merchants to the point that the United Nations passed Security Resolutions 1651 and 1846, condemning acts of piracy and allows the pursuit of pirates into Somali waters.[149] In 2009, the U.S. established the Combined Task Force (CTF) 151, which encountered over one thousand pirates, apprehended 432, and destroyed 76 vessels within 600 days of establishment.[150] Differences in rules of engagement between the countries comprising CTF 151 has resulted in several documented instances where Canadian and British forces gave food and water to pirates after disarming them, throwing their ladders into the water, and releasing them, while another example involves Russian forces releasing pirates by putting them in an inflatable life raft with no supplies or means of propulsion.[151] Differences in operating procedures and the unwillingness of governments to cooperate with each other, and/or the United States, have limited existing efforts at maritime security in this region.

The persistence of piracy and the events of 9/11 have caused an increase in private security firms that offer services ranging from training, harbor security evaluations, harbor security, and armed security teams that ride onboard ships as armed escorts. The issue of armed personnel onboard civilian ships has typically been against what is considered a norm, and regulations of many countries prohibit the presence of firearms onboard vessels flying their flags. This technicality is often bypassed by hiring armed escorts that follow in transport ships. International regulations are less constrictive on the open seas, but within sovereign waters, ships must abide by local rules and regulations. Private security in the Strait of Malacca went fairly unnoticed until a 2005 article depicted foreign militaries using weapons for security within regional waters of Singapore, Malaysia, and Indonesia, which was viewed as a challenge to the region's

148 Sliwinski, "Dire Straits," 101–112.

149 Ibid.

150 Berube and Claude, *Maritime Private Security*, 75–77.

151 Ibid.

"monopoly of the legitimate use of physical force."[152] Outside of providing training and technology to monitor the Strait, regional actors have not allowed any potential challenges to their sovereignty. Interviews of security firm personnel reveal instances of national navies accepting jobs to be contracted as security escorts through the Strait of Malacca, highlighting the malleability of the region's security forces.[153]

There needs to be a collective effort in which these regional actors shape future policy with clear guidelines that allow the use of armed security teams and escorts to complement their own existing forces. Territorial disputes and pursuits into neighboring waters may take more time to delineate with codified regulations, but allowing security teams under innocent passage and additional regulations should allow armed teams to respond in self-defense. For example, U.S. Navy vessels transiting regions such as the Strait of Malacca fall under innocent passage, but are exempt from restrictions due to being classified as warships. The benefit of added security for a relatively low cost may be hard for the international community to comprehend proactively, but they would likely be responsive to the economic impact of a strait closure or delay.

The concern with terrorism is that ships can be seized, their cargo confiscated (chemicals, weapons, and documents), and ultimately be used to block or disrupt these chokepoints. Other scenarios include shutting down ports directly with dirty bombs, or scuttling ships at access points. One 2002 simulation estimated that the complete shutdown of American seaports for 12 days would result in a loss of over $58 billion and the closure of 29 seaports on the West Coast for two weeks would cost about half a billion dollars.[154] Targeting ports or merchants directly would have limited effect, whereas targeting a point upon which most of the world's trade commutes would affect the entire system, and the effects would be felt throughout the world. Statements by Osama Bin Laden, and documents seized following his death, revealed plans and policies of attrition centered on "bleeding" the United States and its allies' economies to

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[152] Berube and Claude, *Maritime Private Security*, 51.

[153] Ibid., 56–61.

[154] Ibid, 159.

bankruptcy by targeting maritime transportation and infrastructure.[155] The suicide bombing of MV *Limburg* in 2002 is credited with temporarily increasing the cost of oil by $0.48 a barrel, and resulted in a 93% drop of container terminal use throughout Yemen.[156] The following statement by Bin Laden captures the reality of the terrorist threat to maritime security and the global economy, "if a boat that didn't cost $1,000 managed to devastate an oil tanker of that magnitude, so imagine the extent of danger that threatens the West's commercial lifeline."[157] The most likely and threatening mode of achieving system disruption would likely come in the form of underwater mines or using improvised underwater explosives to deny access and/or block strategic chokepoints. The psychological and physical damage that could ensue from mining such waters would undoubtedly cause significant, time-consuming delays and blockages.

Mines have been used since the American Civil War and they present a weapon that is relatively cheap and can be deployed by air, surface vessels, swimmers, and submarines. Moreover, mines have been proven throughout history to be extremely effective weapons in denying access to strategic waters. Terrorists have demonstrated their ingenuity through their extensive use of improvised explosive devices, and it is not difficult to imagine them applying the same capacity to developing improvised underwater explosive devices (IUEDs).

The United States deployed more than 25,000 mines along Japanese shipping routes in 1945, sinking 700 and damaging many more vessels.[158] In addition to the unrestricted submarine campaign against Japan in World War II, the use of mines effectively ceased all commerce into and around Japan; following hostilities, it took considerable resources and time for U.S. forces to clear the minefields.[159] The United States was humiliated in the Korean War, where a siege of Wonsan was blocked by 3,000

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[155] Berube and Claude, *Maritime Private Security*, 159–160.

[156] Ibid.

[157] Ibid.

[158] "21st Century U.S. Navy Mine Warfare: Ensuring Global Access and Commerce," America's Navy, 2009, 1–3, accessed June 5, 2015, http://www.navy.mil/n85/miw_primer-june2009.pdf.4.

[159] Ibid.

mines, causing Task Force Commander Rear Admiral Allen E. “Hoke” Smith to retort, “We have lost control of the seas to a nation without a navy, using pre-WWI weapons . . . laid by vessels that were utilized at the time of the birth of Christ.”[160] Libyan naval personnel mined the Red Sea/Gulf of Suez for two weeks from a commercial ferry, the *Ghai*, in 1984, without being challenged, damaging 23 vessels.[161] All of these scenarios illustrate the ease by which mines can be deployed, their effectiveness in disrupting shipping, and the extensive resources and time required to render waters safe for passage again. Mines come in various types and IUEDs can be easily constructed—and both are cheap to produce or procure. An organized attack on several of the high-traffic chokepoints would require shipping to be diverted and/or stopped until resources are dispatched to begin the time-consuming process of hunting and sweeping for mines. The task of demining several areas would stretch the limited resources of coalition forces, further delaying clearance of passageways. Physical damage, which could sink ships in these chokepoints, would further complicate and overwhelm forces. The gaps in a seamless system between private security firms, regional actors, and global powers are exploited by pirates and can also be exploited by terrorists.

American military policy has been more or less tied to the security of oil, expressed in the Carter Doctrine and manifested in the U.S. military operations in the Middle East, all of which partially occurred in response to the effects of the 1973 Arab oil embargo. Today, the United States is less dependent upon oil from the Middle East and credit can be given to the growing development and implementation of renewables, the shale gas revolution, and technologies that target efficiency to reduce energy consumption. U.S. production has reached parity and/or surpassed that of Saudi Arabia and Russia in production capacity and is projected to become a net exporter by 2030.[162] This reduced reliance upon Middle Eastern oil gives the United States more leverage in dealing with the region and reduces its dependence upon the Straits of Hormuz and

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160 “21st Century U.S. Navy Mine,” 5.

161 Ibid., 11.

162 Michaud et al., “Impact of Domestic Shale,” 1.

Malacca. China's development, on the other hand, has outgrown its domestic oil production; thus, growing more dependent upon these strategic points to fuel its economy.[163]

China is aware of this dependence and has responded with doctrines that shift from strictly homeland protection to include trade as a principal national concern.[164] How China plans to increase its security is a matter for concern in the Asia-Pacific region. While they are not official statements, Chinese publications have been cited with statements from scholars and some officials that identify the Strait of Malacca as China's oil lifeline and that whoever controls this resource can threaten China's energy security at any time. Other statements describe the United States as viewing the entire world as "terrorists" and that the continued presence of the United States within the region is an excuse to hinder Chinese naval ambitions.[165] If popular opinion in China is along these lines, the potential for conflict exponentially increases once China's Navy matures into a "Blue Water Navy" and they are able to forcefully engage in ensuring their interests.

Beijing's growing dependence upon the SLOCs and America's decreasing dependence upon them have the potential to motivate a cooperative effort to secure the global economy from threats of terrorism proactively, rather than reactively. U.S. military assets are stretched thin between the Middle East and the Pacific region, and this strain on its military resources is exacerbated by shrinking budgets and security gaps within the Strait of Malacca. In terms of its mining fleet, the United States has 14 MCM-1 *Avenger*-class ships in its inventory, four are stationed in the Arabian Gulf, two are stationed in Japan, and eight are stateside. It only has 28 remaining MH-53E Sea dragons left in its inventory, and both frames are the Navy's primary means of antimine warfare.[166] The amount of time it would take for the U.S. military to simultaneously hunt and sweep mines or IUEDs in multiple locations would be insufficient to prevent a global economic

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163 Michaud et al., "Impact of Domestic Shale," 1.

164 Sliwinski, "Dire Straits," 111.

165 Ibid., 106.

166 "21st Century U.S. Navy Mine," 15.

impact. Serving mutual interests, the severity of this threat may be enough to facilitate a cooperative system between the two major powers, the United States and China. While China lacks the ability to control waters outside of its coastal region, it is the most opportune time for Washington to engage in bilateral agreements to demonstrate the feasibility of a shared role of securing the region.

The global economy is dependent upon the flow of goods and oil throughout the world. The use of maritime shipping accounts for the majority of exported oil and the concentration of shipping through chokepoints leaves this vital source of commerce extremely vulnerable. Noncooperative policies in the Strait of Malacca and differences in rules of engagement and operating procedures between coalition forces leaves an uncoordinated system that could be described as reactive rather than proactive.

In the post-9/11 era, the threat of terrorism has been realized and is ever prevalent. Chokepoints along maritime routes are extremely vulnerable and there is documented evidence confirming that terrorist organizations and pirates have targeted this infrastructure. The prevalence of piracy in these areas demonstrates the vulnerability of maritime transport. Mines present the most feasible and likely means to cause and adequate disruption in the world's trade system and result in an economic crisis. Countries within the Asia-Pacific region are at greater risk because of their dependence upon imported energy sources, requiring them to draw upon their reserves and/or share resources according to existing treaties. The emergence of private security firms pose a feasible means of hardening vessels against attacks and hijacking, and alleviating the drain on military resources throughout the world; but, policy restrictions within territorial waters prevent this potential from manifesting. The solution lies in a proactive approach toward this system failure. Cooperation between Malaysia, Indonesia, and Singapore is necessary, and resulting policies should incorporate the added benefit of private security usage, paid for by corporations. The U.S. pivot to the Pacific could help foster cooperation and greater interoperability between Indonesia, Malaysia, and Singapore.

B. CHINA/CENTRAL ASIA/UNITED STATES

Contemporary energy markets are challenged by the unprecedented economic growth in Asia, specifically in China and India. Growing pains have strained the world's larger economies by their inability to develop sufficient domestic energy supply to keep pace with rapid economic growth. This study will focus on China, as it is slightly more developed than India and more active in its attempts to influence the geopolitics of Eurasia. China's actions and developments challenge the status quo and have the potential to marginalize U.S. influence in the Asia-Pacific region. This thesis will demonstrate China's dependence upon imported energy and how this dependence has influenced its foreign policy in developing preferential trade agreements with global producers of energy commodities. A brief discussion on China's natural resources, domestic production capability, future plans, and energy mix will help demonstrate China's necessity for imported energy sources. This growing dependence upon imported energy leaves China increasingly vulnerable to coercive energy policies, as experienced by the Japanese in World War II under the U.S. oil embargo, the United States by the 1973 Arab oil embargo, and Russia's post-Cold War evolving relationship with Europe regarding gas supplies. To mitigate the possibility of a disruption in their energy supply, Beijing has spent nearly $2 trillion in this decade on their defense budget.[167] The exclusionary tone of RCEP and its opposition to the U.S.-led TPP, combined with its military expansion and developments in the South China Sea, are cause for concern. Lastly, this section will discuss the U.S. policy shift to the Pacific with regard to China's development.

China's economic growth has afforded it the means to develop a robust military. This fast economic growth has had the unintended consequence of increasing its energy needs in order to sustain its economic force and, in turn, its military. These developments have led Beijing to become the largest energy consumer and producer in the world, and the disparity between their consumption and their production capabilities is growing. In

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[167] Jeremy Page, "Missing From Beijing's WWII Victory Parade: Price Tag," The Wall Street Journal, September 2, 2015, 1, accessed September 5, 2015, http://www.wsj.com/articles/missing-from-beijings-military-spectacle-price-tag-1441210301.

order to supplement its production capacity, China became the world's largest importer of petroleum and petroleum products in the world, surpassing the United States at the end of 2013.[168] Beijing accounted for 43% of the world's oil consumption growth in 2014, and is projected to account for a quarter of global consumption growth through 2015.[169] Estimates in 2015 indicate that China's proven oil reserves are approximately 24.6 billion barrels and that Beijing has become one of the top oil producers in the world; in the past 20 years alone, domestic capacity has increased by 50%.[170] While its domestic capacity has increased, it has plateaued and will see relatively little increase compared to demand projections. In 2014, Beijing was able to produce 4.6 million b/d, but consumed 10.7 million b/d, requiring it to import more than half of its petroleum supply.

The term "energy mix" is used to describe the combination of energy commodities that a country uses to answer its needs. Petroleum in this case, only accounted for 20% of the world's energy generated in 2012.[171] For the rest of its energy requirements, China has turned to resources within their control. After discussing the mixture used by Beijing, this section will discuss the different technologies and sources that are being used for conventional electricity generation to slow the increase of petroleum demand.

According to the IEA, "China is the world's top coal producer, consumer, and importer, and importer and accounts for almost half of global coal consumption."[172] Unlike its petroleum deposits, there are substantial amounts of coal within its borders. The problem with coal is that it is not as easy to transport as gas or petroleum, limiting its application. It is limited to fueling traditional, coal-powered plants, which are considered

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168 "East and Southeast Asia: China," Central Intelligence Agency, September 15, 2015, Background and Energy, accessed September 16, 2015, https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html.

169 Ibid.

170 "China: International Energy Data and Analysis," U.S. Energy Information Administration, May 14, 2015, 3, accessed August 20, 2015, http://www.eia.gov/beta/international/analysis_includes/countries_long/China/china.pdf.

171 Ibid., 3.

172 Ibid., 1.

"dirty" technology due to GHG emissions and have recently become a concern for policy makers. In 2012, coal accounted for 66% of Beijing's energy mix, but efforts have been made in an attempt to cap its contribution to the mix at 62% by 2020.[173] Petroleum and liquids accounted for 20%, hydroelectricity 8%, natural gas 5%, and nuclear 1%.[174] Growing demand for petroleum is specific to motor vehicle use and, as the country's middle class benefits from China's increased GDP, a larger number of vehicles on the road create a growing demand for petroleum, rather than for coal, hydroelectric, or nuclear energy resources. Efforts have been made to limit petroleum's use in conventional power production and the implementation of efficiency and emissions standards are being used to answer the cuts in petroleum and coal use in China's traditional energy mix. Future plans are to increase the use of natural gas to replace petroleum and coal reduction and limits.[175] To further decrease the strain on domestic energy markets and help lessen its dependence upon foreign oil, China plans on constructing 20 more nuclear power plants by 2020, bringing the nuclear portion of its energy mix from 2% to 15% by 2035.[176] Domestic development will have limited success in providing Beijing with a secure source of energy. To help facilitate China's outward search for petroleum and gas, it created three national oil and gas companies in the 1980s: China National Petroleum Corporation (CNPC), China Petroleum and Chemical Corporation (SINOPEC), and China National Offshore Oil Corporation (CNOOC).[177] While the liberalization of China's economic policies have opened up private enterprises, a majority of investments and infrastructure development occurs through these nationalized oil companies (NOCs). China's growing dependency upon imported energy has resulted in the development of bilateral trade agreements and infrastructure development by these NOCs. While these agreements and investments primarily target geographically convenient countries for their transport and resource

173 "China: International," 1.

174 Ibid., 2.

175 Ibid.

176 Ibid.

177 Ibid., 4.

potential, China has also sought deals with nearly every energy resource producing nation. Foreign oil imports from major regions are as follows: Middle East 52%, Africa 22%, Americas 11%, Russia 13%, and the Asia-Pacific 2%.[178]

Regional stability has therefore become ingrained within China's foreign policies. As demonstrated with Sudan, South Sudan, and Iran, regional issues and sanctions resulted in reduced or no flow of oil from these countries to China and required Beijing to seek relations with the United Arab Emirates, Oman, Iraq, Angola, Venezuela, and Russia to prevent an actual shortage.[179] While energy commodities are the focus of this section, the routes and infrastructure developed to transport these commodities also help facilitate trade. With this in mind, geopolitics has helped China develop its autonomous region, Xinjiang, in order to promote stability. Secessionist rhetoric and unrest by the region's Uyghur population potentially threatens China's second-largest energy producing region, representing 19% of total production, within its borders.[180] A 2000 census indicates that 45% of this region's population are Uyghurs, but they only represent approximately half of China's total Muslim population.[181] An American international relations scholar, Monica Duffy Toft, provides a model of four physical distributions of ethnic groups and their capability for or risk of successfully separating from a state places a low probability of success in this case.[182] While the total Uyghur population represents a minority in China, their presence in the energy-rich region and its proximity to Central Asian energy resources makes ensuring stability within the region a priority. By reducing the perception of regional marginalization and uneven distribution of resources to Xinjiang, Beijing will help reduce the salience of ethnic division in secessionist

178 "China: International," 10.

179 Ibid., 9–12.

180 Ibid., 7–18.

181 "Xinjiang Territory Profile - Overview - BBC News," BBC News, October 14, 2014, 1, accessed September 1, 2015, http://www.bbc.com/news/world-asia-pacific-16860974.

182 Monica Duffy Toft, *Indivisible Territory and Ethnic War*, working paper no. 01–08 (Harvard University: Weatherhead Center for International Affairs, 2001), 9–14, accessed September 1, 2015.

movements.[183] The revised total GDP of China in 2013 was $9.4 trillion and the total trade with Central Asia only accounted for $50 billion of the total.[184 ,185] Of the $50 billion of trade with Central Asia, 80% was through the Xinjiang province.[186] The infrastructure and trade developments through Central Asia, vis-á-vis the "March Westward" and the Silk Road Economic Belt, have the benefit of increasing trade in Xinjiang, but more importantly grant they access to Central Asia's energy resources and transportation routes. Of note, China has recently been identified as having the world's largest shale gas deposits discovered to date.[187]

The Sudan, South Sudan, and Iran examples demonstrate the vulnerability of China's reliance on substantial volumes of oil and gas from unstable regions of the world. To help curb this vulnerability, the NOCs have developed a diversified number of sources to limit the impact of regional instability on its energy supplies. Recent discoveries of energy deposits within Central Asia place the Caspian Sea Basin at 18.8% (approximately 2%–3%, excluding Russia) of the world's proven oil reserves and 45% (approximately 4%–5%, excluding Russia) of its total gas reserves.[188,189] When referencing the Caspian Sea Basin for its energy resources, Kazakhstan, Turkmenistan, Iran, Azerbaijan, and Russia are generally associated with energy markets.

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183 Henry E. Hale, "Divided We Stand: Institutional Sources of Ethnofederal State Survival and Collapse," *World Politics* 56, no. 02 (January 2004): 165–169, accessed September 1, 2015, doi:10.1353/wp.2004.0011

184 $9.4 trillion stats from "China Revises 2013 GDP Up by 3.4%," *Shanghai Daily*, December 19, 2014, 1, accessed August 25, 2015, http://search.proquest.com/docview/1637953981?accountid=12702.

185 Alexander Cooley, "China's Changing Role in Asia and Implications for U.S. Policy: From Trading Partner to Collective Goods Provider," U.S.-China Economic and Security Review Commission, March 18, 2015, 1–5, accessed August 28, 2015, http://www.uscc.gov/sites/default/files/Cooley%20Testimony_3.18.15.pdf.

186 Anwar Zahid, "Development of Infrastructural Linkages between Pakistan and Central Asia," *South Asian Studies* 26, no. 1 (January 2011): 110, accessed August 28, 2015, http://search.proquest.com/docview/1315320002?accountid=12702.

187 "China: International," 19.

188 Thrassy N. Marketos, China's Energy Geopolitics: The Shanghai Cooperation Organization and Central Asia (Abingdon, Oxon: Routledge, 2009), 1.

189 Jean A. Garrison and Ahad Abdurahmonov. "Explaining the Central Asian Energy Game: Complex Interdependence and how Small States Influence their Big Neighbors." Asian Perspective 35, no. 3 (2011): 381–405. http://search.proquest.com/docview/928757521?accountid=12702 1

Since the early 1990s, foreign investment into the region came with the formation of the Caspian Basin Consortium, which has predominately served European markets.[190] Due to Central Asia's geographical proximity to China, additional infrastructure to the world's leading consumer and overall integration into a vast transportation system would help facilitate a free oil market. An alternative to the Trans-Siberian transportation route and integration into the international markets will have a beneficial effect on the region's overall economic health. While there are other resources deposited throughout the region, the fall of the Soviet Union in 1991 has left these states vying to solidify their sovereignty and bolster their economies, while, collectively, they represent a strategic supply of energy reserves. Other land-locked Central Asian states, which do not have energy resources of significance, become important to this research for their use of transportation infrastructure. An unintended consequence, and benefit, to Asia is that by developing new infrastructure and integrating the region through various pipeline projects, a second Eurasian land bridge has given an alternative outlet to these former Soviet states, helping to reduce Russia's footprint throughout the greater Eurasian area. Beijing's current five-year plan seeks to limit oil imports to no more than 61% of its total supply by the end of 2015.[191] As early as 1997, Beijing pledged over $10 billion in investments, primarily in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan for energy-related infrastructure development.[192]

Besides its energy resources, Kazakhstan also serves as a transit state, connecting China to Azerbaijan, Russia, Kyrgyzstan, Tajikistan, and Uzbekistan.[193] Chinese investment in Kazakhstan's energy resources came as early as 1997, when CNPC purchased a 60% share of Aktobemunaigaz for $4.3 billion and won a contract that same year for a controlling interest in Uzen, the second-largest oil field in the country.[194] The

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190 Garrison, "Explaining the Central Asian," 383-389.

191 "China: International," 10.

192 Marketos, *China's Energy Geopolitics*, 15.

193 S. Frederick. Starr, *The New Silk Roads: Transport and Trade in Greater Central Asia* (Washington, DC: Johns Hopkins University-SAIS, 2007), 396.

194 Garrison, "Central Asian Energy," 383-389.

transnational Kazakhstan Russian oil pipeline was a 2006 joint venture with CNPC and Kazakhstan's national gas company, and primarily transports oil to China's Xinjiang region, and it is then transported east through Beijing's East-West route.[195] Despite its being a joint venture with 50/50 ownership, CNPC paid 85% of the costs.[196] The development of the Central Asian Gas Pipeline (CAGP) created four branches, which ultimately link other Central Asian suppliers to main lines that were developed by China's NOCs. In return for Chinese investment, Kazakhstan signed multiple agreements to provide specific volumes of energy resources through its connection to the CAGP. Other projects in which China was the prominent investor and developer were: the Atyrau to Alashankou pipeline in 2006, the Atasu to Alashankou pipeline in 2010, and the expansion of the CAGP portion with Turkmenistan and Uzbekistan in 2010.[197] There have been several other development projects in the form of railways, roads, and pipelines, all of which ultimately link into a growing network of energy transportation corridors under Chinese investment and influence. The power of energy security and Beijing's mission to develop secure resources provides a substantial motive for China to settle long-standing border disputes with Kazakhstan in return for these bilateral arrangements.[198] Similar border dispute resolutions with China have been implemented in return for access to other Central-Asian energy markets.

Similarly, Uzbekistan has been incorporated into the CAGP infrastructure network, serving as a transit state to Kazakhstan, Iran, Afghanistan, and Tajikistan. Its segment of the CAGP, line-d, began in 2014, and is scheduled to be online by 2016.[199] [200] The cost of China footing the bill was an agreement guaranteeing the delivery of 350-billion cubic feet per year via the CAGP connection.[201] CNPC and Petro China are

195 "China: International," 11.

196 Garrison, "Central Asian Energy," 392.

197 "China: International," 22.

198 Marketos, *China's Energy Geopolitics*, 15.

199 "China: International," 22.

200 Starr, *New Silk Roads*, 397.

201 "China: International," 22.

responsible for landing many of these intraregional deals, promising much needed infrastructure investment in return for stakes in the projects or companies, and long-term contracts.[202]

Agreements with Turkmenistan project capacities of up to 2.3-trillion cubic feet per year through the CAGP by 2020.[203] Talks over the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline would potentially make Pakistan's port of Gwadar a central node for this developing energy architecture.[204] The route, development, and financing of this mega project have been under debate since 2006, and rumors as late as March 2015 indicate that the impasses from the multiple governments may be finally reaching an agreement.[205] Due to the natural geography within the region, an agreement by India allowing Pakistan to potentially hold the key to New Delhi's access to upstream energy supplies would be a huge development. S. Frederick Starr, in his book, *The New Silk Roads*, criticizes the overall status of the region as needing heavy investment in transportation infrastructure. China has undoubtedly filled this role and has overcome some significant cross-border issues to gain access to valuable energy markets. These developments helped to develop an interconnected Asian network of benefit those who participate, but are ultimately subject to China's interests in their energy resources. In the event of a disruption of flow, Beijing's ability to cross into neighboring countries and exercise force becomes a threatening scenario. This threat can arguably serve as a deterrent and actually add to regional stability, but in the event of failed deterrence, the actual price of allowing China in may be the cost.

While Russia has been resistant to China's development within Central Asia, it, too, has used China's economic power to help develop infrastructure in return for trade agreements. This may be due to lost market shares from Beijing's development of the second Eurasian land bridge. Either way, Russia's eroding influence in the region has

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202 Starr, *New Silk Roads*, 398.

203 "China: International," 22.

204 Starr, *New Silk Roads*, 400–405.

205 Micha'el Tanchum, "A Breakthrough on the TAPI Pipeline?," *The Diplomat*, March 20, 2015, accessed September 1, 2015, http://thediplomat.com/2015/03/a-breakthrough-on-the-tapi-pipeline, 1.

given way to China by accepting Beijing's money and terms on bilateral agreements. CNPC holds a 49% share in a venture in Russia's Eastern Siberian oil fields (the ESPO project).[206] With the pipeline operational in 2011, China and Russia entered a 20-year agreement for the delivery of 300,000 barrels of oil per day, with plans to add an additional 1.6 million b/d by 2020, under an ESPO expansion.[207] Additional agreements between CNPC and Russia's Gazprom call for 1.1-billion cubic feet of natural gas per year from a joint venture that is expected to become operational by 2018; the approximate value of the negotiated deal is worth more than $400 billion over a 30-year period.[208] Sinopec struck a deal with Russia in 2006, in which it purchased a 49% stake in Udmurtneft and cooperated with Rosneft for project development in the oil field.[209]

Other projects throughout the region include: a China/Myanmar pipeline for 420 billion cubic feet per year; CNOOC 50% ownership in the Australian Queensland Curtis LNG project; Sinopec's 25% share of Australian Pacific; CNPC's 20% ownership of Russia's Yamal LNG; and Sinopec's development in additional Kyrgyzstan Alai Hollow oil fields.[210] [211] Turkey plays a significant role by linking the developing infrastructure in Central Asia to the Europe-Caucasus-Asia Transport-Corridor While Europe is competing for trade and Central-Asian energy markets, Asia's access to Western markets via an alternative land route would help lessen Beijing's vulnerability to a maritime blockage. Another benefit of linking to European markets is that it diversifies the market for Central-Asian energy exports and could further reduce the competitiveness and

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206 "China: International," 9.

207 Ibid., 12.

208 Ibid., 22.

209 "China's Overseas Investments in Oil and Gas Production," U.S.-China Economic and Security Review Commission, October 16, 2006, accessed September 1, 2015, http://origin.www.uscc.gov/sites/default/files/Research/china's%20overseas%20investments%20in%20oil%20and%20gas%20production.pdf. 13.

210 "China: International," 24.

211 Starr, *New Silk Roads*, 399.

influence of Russia within the region.[212] With diminishing market shares in Europe and Central Asia, Moscow may continue to seek long-term contracts with China.

The development of Gwadar port and the associated infrastructure connecting Pakistan's deep-water port to Xinjiang provides a strategic corridor that has the potential to bypass the Strait of Malacca and reduce the strain on Beijing's eastern seaports. While the Karakoram highway, and the associated pipelines and railways of the China Pakistan Economic Corridor (CPEC), provide China with access to additional markets, and secures an alternative energy route, estimates show the potential for up to $60 billion a year for Pakistan in the form of transit fees alone.[213] Baluchistan itself sits upon an estimated 29-trillion cubic feet of natural gas and 6 billion barrels of oil; thus, further investment and development will serve both Pakistan's developing infrastructure and China's energy security.[214] This window to the sea has the potential to link with other infrastructure developments and serve as a central node for energy commodity flows within the greater Eurasian landscape. Due to its geographical position, it offers Xinjiang a relatively shorter and cheaper route to bolster trade within Beijing's western provinces. This access to greater markets at a cheaper price benefits Pakistan in the form of transit fees, infrastructure investment, and additional access to markets as trade through Gwadar eventually accommodates larger cargo ships, in greater volume. The Economic Cooperation Organization estimates that as much as 40% of the region's trade can be channeled through this corridor and greatly bolster the region as a whole.[215] The potential for the 1,700-km TAPI pipeline to link through Gwadar port could also be used to house high-speed, fiber-optic cables in the development of a supervisory control and data acquisition telecommunications system.[216] Currently, transit times from Asia to Europe take as long as 45 days and costs up to $167 per ton. Incorporating the CPEC into the

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212 Starr, *New Silk Roads*, 447.

213 Takrim Kausar and Mustafa Afif, "Gwadar Port: A Threat to Or an Opportunity for India?," *The Journal of Humanities and Social Sciences* 23, no. 1 (March 2015): 65–68, accessed August 28, 2015, http://search.proquest.com/docview/1700330954?accountid=12702.

214 Zahid, "Development of Infrastructural," 103.

215 Ibid., 105–107.

216 Ibid., 109.

second Eurasian land bridge will help cut the cost to $110 per ton and cover 6,379 km, rather than 26,000 km.[217] While this strategic "alliance" helps to bolster regional economies, the potential for China to use Gwadar port as a military outpost has caused concern for the United States and its allies.

To summarize the cost of doing business with China, all four lines of the CNPC effectively link all of the energy producers of the region, and have resulted in Beijing owning over 50% of each development.[218] Several multibillion dollar loans have been issued to Turkmenistan, Kazakhstan, and Latin America in return for secured promises of gas deliveries.[219] China is effectively buying out Central Asia in return for badly needed infrastructure development. Ultimately, all of these bilateral agreements and development are in the beginning phases of integrating Asian markets through alternative land routes and will eventually link the Asian infrastructure to Europe's extensive network for a greater Eurasian trade network. By maintaining a significant share within the developed infrastructure, China effectively controls the energy transit routes and has ultimately established itself as a significant power in the region.[220] An advantage to Beijing's NOCs developing trade relations within the region is that they are not constrained by international sanctions and are financed through state-owned banks, allowing for investments into areas that Western powers would not typically be able to invest.[221] It is difficult to differentiate between equity and regular import oil to determine the amount of oil Beijing actually receives in return for its investments, but a 2006 study approximates that less than 10% of Beijing's imports for that year was in the form of equity oil.[222] A decade of unprecedented economic growth and energy demand cannot be satiated by such modest returns. While these developments have the potential to diversify sources, they are limited in volume and have a limited utility for providing energy security.

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217 Zahid, "Development of Infrastructural," 111.

218 Alexander Cooley, "China's Changing Role," 2.

219 Ibid., 2–3.

220 Starr, *New Silk Roads*, 417.

221 "China's Overseas Investments," 3.

222 Ibid., 2.

China's efforts to develop overland transportation routes and develop trade agreements are useful in a relatively peaceful environment. America's use of oil against Japan in World War II, however, demonstrated that despite Japan capturing the Dutch East Indies, targeting transportation routes to the homeland rendered the Japanese war machine impotent. Overland routes are constrained in volume when compared to maritime transport and are considerably more vulnerable, due to their length and indefensibility. Russia has demonstrated that pipeline infrastructures can be manipulated to disrupt the flow of energy resources anywhere along the established route.

China's Navy has increased its operations further from its coastline. Since February 2015, at least four submarine deployments from China have entered the Indian Ocean and each deployment was conducted by different classes of submarines within Beijing's arsenal for two suspected reasons: first, to demonstrate the People's Liberation Army Navy's capability to operate as a Blue Water Navy and, second, to showcase their military assets to potential buyers.[223] Indian officials have expressed growing concerns over China's alleged antipiracy operations as a façade for demonstrating their ability to pose a credible force; Brahma Chellaney described the submarine port call to Colombo, Sri Lanka, in autumn of 2014 as their first operation within the region in 600 years.[224] Just last month, *The Wall Street Journal* reported the presence of five Chinese warships off the coast of Alaska during President Obama's visit to the state, signifying the first time that China had ventured within U.S. territorial waters.[225] While contested regions within the resource-rich East and South China Seas have not produced territorial dispute resolutions, as in the case with several Central-Asian border disputes, China's conduct in the Spratly Islands have demonstrated Beijing's commitment to bringing resource-rich areas directly under their control. Despite international disapproval and the signing of the 2002 Declaration of Conduct for parties in the South China Sea, Beijing has continued to

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223 Unnithan Sandeep, "China Tests New Waters," *India Today*, June 2015, 1, accessed September 1, 2015, http://search.proquest.com/docview/1686344318?accountid=12702.

224 Ibid., 2.

225 Jeremy Page and Gordon Lubold, "Five Chinese Navy Ships are Operating in Bering Sea Off Alaska," *The Wall Street Journal*, September 2, 2015, accessed September 5, 2015, http://www.wsj.com/articles/pentagon-watches-as-chinese-navy-ships-sail-in-bering-sea-1441216258.

develop infrastructure on the Spratlys and has begun challenging maritime and air traffic in the area.[226] Thus far, China's developments and actions have not met sufficient opposition by any country. China has also established an ADIZ in the contested Senkaku/Diaoyu Islands, overlapping Japan's internationally recognized air space.[227] The question facing many Western analysts and policy makers is how to answer these actions without inciting a conflict and if this is indicative of how China will safeguard its energy resources as its military reaches maturity. China's actions have prompted several governments in the region to request that the United States increase its presence in the region, and have prompted others to increase their own military forces. Japan, for example, has shifted from a defense force to one capable of a combat role.[228] Assertive actions have not been limited to regions of territorial dispute. In 2001, the USNS *Bowditch*; in 2009, the USNS *Impeccable*; and, lastly, in 2013, the USS *Cowpens* were all subject to aggressive actions forcing them to vacate China's Economic Exclusion Zone (EEZ).[229] Operations within the EEZ of foreign countries are granted by international law; thus, aggressive actions to deny access to a global common space is a manifestation of access denial.[230]

China is growing increasingly dependent upon foreign imports despite measures of diversifying sources over land and sea. The development of a modern military to protect its national interests have yet to clearly delineate to what degree China is willing to enforce its access to energy markets. While China is not alone in developing infrastructure in Central Asia, *The New Silk Roads* describes a system that is still inefficient due to trade barriers. The resulting bilateral agreements have become what is

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226 Chun Han Wong, "China to Expand Naval Operations Amid Growing Tensions With U.S.," *The Wall Street Journal*, March 26, 2015, 3, accessed August 15, 2015, http://www.wsj.com/articles/china-shifts-maritime-military-focus-to-open-seas-1432648980.

227 Carl Cavanagh Hodge, "The Pivot in Perspective: American Naval Power, Then and Now," *Orbis* 58, no. 3 (2014): 402, accessed September 1, 2015, doi:10.1016/j.orbis.2014.05.006.

228 Jonathan Soble, "Japan's Parliament Approves Overseas Combat Role for Military," *The New York Times*, September 18, 2015, 1, accessed September 22, 2015, http://www.nytimes.com/2015/09/19/world/asia/japan-parliament-passes-legislation-combat-role-for-military.html?_r=0.

229 Hodge, "The Pivot in Perspective," 403.

230 Ibid., 403–404.

known as the "noodle bowl."[231] Overlapping agreements with preferential tariff and taxes toward certain states, for certain goods, has created a system that is inhibited by border inefficiencies. Even as developments of a regional network are nearing relative integration, these inefficiencies will prevent the region from reaching its full potential. In 2010, the United States proposed the TPP in order to create a World Trade Organization plus standard, in which more-developed countries would be able to more easily access markets within the region and enjoy intellectual right guarantees.[232] This proposal targeted the region as a whole and sought to incorporate any willing state without exclusion. In response to this, Beijing headed the proposal for the RCEP, focusing upon a regional system that excludes the United States and other Western states.[233] The RCEP is not as robust as the TPP and promotes a regional network, rather than one that is integrated into the international framework. The exclusionary tone of Beijing's proposal has placed pressure upon regional actors to potentially side with either China or the Western powers. Because of China's growing influence and investments within Central Asia, more states may be inclined to side with China due to greater economic benefit and economic dependence upon Beijing.

The U.S. pivot to the Asia-Pacific region is represented by the TPP and an increase in military assets to the region. The shale revolution has afforded Washington some leverage in shifting toward the Pacific and some speculate that it may be to draw China's resources into the region as the United States reduces its presence.[234] Washington has expressed the necessity to develop a cooperative relationship with Beijing, despite China's seeming unwillingness to accept the TPP and reduce its assertiveness in contested waters of the East and South China Seas. By reducing America's military presence in the Middle East, and potentially exposing an area of vital importance to Beijing's energy supplies, China will be more inclined to actively secure

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231 Jeffrey D. Wilson, "Mega-Regional Trade Deals in the Asia-Pacific: Choosing Between the TPP and RCEP?," *Journal of Contemporary Asia* 45, no. 2 (2014): 347, accessed August 20, 2015, doi:10.1080/00472336.2014.956138.

232 Ibid., 346–348.

233 Ibid., 348–350.

234 Michaud et al., "Impact of Domestic Shale," 1–4.

the region with its limited military capabilities. These limited capabilities could potentially open cooperative relations between the region's two eminent powers. According to a Congressional Research Report, "the fundamental goal underpinning the shift is to devote more effort to influence the development of the Asia-Pacific's norms, rules, particularly as China emerges as an ever-more influential regional power."[235] Several policy reports note that Washington has shifted its allocation of funding to improve capabilities to defeat A2/AD capabilities, which are known to be a focus for China's military.[236] What is of growing concern is that the theory of economic interdependence resulting from the globalization does not necessarily require the types of modernized military equipment that China has been acquiring. Beijing is building offensive capabilities, rather than following the trend toward counterinsurgency, stability operations, and humanitarian intervention.[237] The development of ballistic and cruise missiles, attack submarines, and long-range air defense capabilities, indicate a buildup for interstate warfare, rather than preserving peace and stability. Washington has responded by repositioning additional military assets throughout the region.[238] Washington has developed what is called the Air Sea Battle, in which it seeks to maintain maritime capabilities despite budget cuts. This concept has been crafted to "deter the People's Republic of China from territorial aggression or sea access denial in the Western Pacific, and, failing that, to defeat its armed forces."[239] War games centered on this concept focus upon a potential conflict in 2028, based upon capabilities and tactics resembling China's force. The positioning of additional assets in the region anticipates the participation of Australia and Japan in countering this threat.[240]

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235 *Pivot to the Pacific? The Obama Administration's "Rebalancing" Toward Asia*, by Mark Manyin, Stephen Daggett, Ben Dolven, Susan Lawrence, Michael Martin, Ronald O'Rourke, and Bruce Vaughn, Cong. Rept. 7–5700, 1.

236 Ibid., 4.

237 Hodge, "The Pivot in Perspective," 392–393.

238 *Pivot to the Pacific*, 1.

239 Hodge, "The Pivot in Perspective," 405.

240 Ibid.

In conclusion, China's economic growth has bolstered Beijing into a growing world power. China's growing involvement in the region center upon energy security considerations, with the added benefit of increasing trade infrastructure, which also helps facilitate GDP growth for all countries involved. Due to the geographic layout of borders and energy commodity distribution, the nature of these relations center upon energy harvesting infrastructure and transportation infrastructure, which must pass through borders outside of Beijing's control. This produces vulnerability to regional unrest and makes stabilizing these vital regions a priority for China. The potential benefit of developing resources in contested water would give Beijing direct access to alternative sources of energy, without the added risk of regional governments, and reduce the risk of transportation cut disruptions. To help mitigate the risk of maritime disruptions through the Straits of Hormuz and Malacca, China is developing a Blue Water Navy in order to protect its interests and to deter the blockage of these strategic locations. The untangling of the "noodle bowl" will either be accomplished by the U.S.-led TPP or China's RCEP to help regulate and streamline cross-border interactions. Neither of these frameworks have been agreed upon as yet, nor do they explicitly regulate energy commodities, but either one would help to alleviate the inefficiency of the current system. Jean A. Garrison and Ahad Abdurahmonov, explain that "dominant voices in the energy security debate describe the competition for energy resources as a zero-sum, realist game that will lead to future resource wars among prominent system-shaping states."[241] Others would argue that the complexity found within interdependence will diffuse this resource competition and that the use of force would be unlikely used due to its counterproductivity.[242] The question remains as to whether or not China will develop a cooperative relationship in securing the global commons, or if it will exercise its military force, once it reaches maturity, to gain preferential shares once global demand is too great to be met by world production.

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[241] Garrison, "Central Asian Energy," 381.

[242] Ibid.

IV. CASE STUDIES

The following three case studies are analyzed due to the nature of energy considerations in state policy: Washington's use of energy diplomacy and energy as a strategic weapon against Japan in World War II, the 1973 Arab oil embargo, and Russia's evolving relationship with Europe in the post-Cold War era in order to understand energy-related variables that affected policy makers' decisions. In all of these examples, access to energy resources was leveraged as a tool of coercive diplomacy enabled by the exporter's large market share of target country imports. The outcomes in these examples vary, but general results did not achieve policy objectives.

A. JAPAN

Washington's use of energy diplomacy and energy as a strategic weapon against Japan in World War II is relevant to this thesis by demonstrating how energy played a role in prompting Japan's attack on Pearl Harbor on December 7, 1941, and its role as a strategic weapon after the onset of military actions. This section will be organized by analysis of Washington and Tokyo's decision-making process, followed by implications following Pearl Harbor.

Developments in World War II before the attack on Pearl Harbor preoccupied Washington with a "Europe first" mind-set, which also affected Japan's calculus of a limited response from Washington given America's commitment to Europe.[243,244] Despite President Franklin D. Roosevelt's belief that an oil embargo on Japan would likely result in Japan attacking the oil-rich Dutch East Indies and end in war, he did not revoke the decision by Secretary of State officials, Dean Acheson and Stanley Hornbeck, to include oil in the freezing-of-Japanese-assets order in the summer of 1941.[245] Tokyo's use of oil was relatively low at the time, accounting for approximately 7% of its energy

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243 Yergin, *The Prize*, 312.

244 Jeffrey Record, *Japan's Decision for War in 1941: Some Enduring Lessons* (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2009), 23–45.

245 Ibid., 15–18.

mix, most of which was consumed by its massive Navy. Domestic production of the empire was only able to meet 7% of its total demand, requiring them to import a majority of their crude.[246] The United States accounted for 80% of Tokyo's imports and the remaining 10% came from the Dutch East Indies.[247] As early as 1934, the prospect of using oil to frighten Japan into abandoning its objective was circulating among policy makers, but the fear of implications that an embargo might cause prevented it from being implemented until the end of July 1941.[248] The aim of Washington's policies were to prevent Japan's expansionist campaigns through three actions: "(1) redeployment of most of the U.S. Fleet from southern California to Pearl Harbor . . . ; (2) imposition of economic sanctions, culminating in the oil embargo . . . ; and (3) a last-minute attempt to strengthen U.S. military power in Southeast Asia . "[249] Implemented in hopes of forcing Japan to abandon its campaign and bring them to the negotiating table, Washington and its allies failed to understand Japan's objectives and willingness to achieve them.[250] Ultimately, the oil embargo resulted in Japan's decision to move south in an attempt to control the oil resources of the Dutch East Indies, which necessitated the destruction of the U.S. Pacific Fleet stationed in Pearl Harbor as a means of achieving success. After entering the war, the United States used oil as a strategic weapon, rather than a diplomatic means of exerting pressure. The United States effectively cut Japan off from all petroleum resources external to its mainland through blockades, unrestricted submarine warfare, and aerial bombings. A survey by Japan in 1945 to determine whether war was still a viable option revealed that their war economy had been immobilized and depleted of their two-year strategic oil supply; Japan had less than a million barrels remaining, rendering its military force nearly useless.[251] Oil was identified as Japan's critical vulnerability by both Tokyo and Washington before the

246 Yergin, *The Prize*, 307.

247 Ibid., 307.

248 Ibid., 308–318.

249 Record, *Japan's Decision*, 39.

250 Yergin, *The Prize*, 325–326.

251 Ibid., 365.

onset of armed conflict. For Japan, their policies aimed to reduce its dependence upon foreign oil, while the United States sought to leverage its supply to pressure Japan into negotiations and later to immobilize Japan's economy and military force. Tokyo's inability to secure an uninterrupted supply of energy did not end the conflict, but played to the American's strategic advantage. During the later years of the war, discussions in Washington began to focus on the Middle East, as exploration in the region promised enormous petroleum reserves.[252]

Japan's expansionist policies during World War II were an effort to control resource rich territories that could facilitate Tokyo's continued economic growth without depending upon raw material imports from outside powers.[253] In response to Tokyo's actions in the Asia-Pacific region, Washington notified Japan that it was annulling the 1911 commercial treaty in July 1939 and began implementing embargoes on exports to Japan in January 1940. It subsequently expanded sanctioned materials in July, September, and December of the same year.[254] In November 1941, four months after oil was included in the sanctions, the U.S. ambassador to Japan, Joseph Grew, reported to Washington that "the greater part of Japanese commerce has been lost, Japanese industrial production has been drastically curtailed, and Japan's national resources have been depleted."[255] That same month, Prime Minister Hideki Tojo warned the Imperial Conference that Japan would be doomed to become a third-class nation if nothing was done and added that their petroleum reserves would be depleted within two years, effectively immobilizing their military.[256] By moving south, Japan would be able to seize the Dutch East Indies to gain control over oil production and other resources and relinquish its dependence upon the United States.[257] While Japan did not want to go to war with America, conceding to Washington's demands to forfeit its already acquired

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252 Yergin, *The Prize*, 393.

253 Record, *Japan's Decision*, 2–4.

254 Ibid., 15.

255 Ibid., 15–17.

256 Yergin, *The Prize*, 321.

257 Record, *Japan's Decision*, 35.

territories and cease its actions in the region was an unacceptable ultimatum that strengthened the call for action in light of Washington's sanctions.[258] In evaluating the potential outcome of war, most of Japan's policy makers did not think that Japan could defeat the United States in a prolonged war, but that they could achieve limited success in a swift seizure of Southeast Asia and by fortifying the region enough that America would be unwilling to commit the required forces due to its engagements in Europe and ultimately accept Japan's position.[259] Japan also realized, that in terms of time, their relative military power would decline compared to Washington's, based upon America's Two-Ocean Navy Act of 1940. Japan's relative ratio of naval tonnage would decrease to "65 percent in 1942, 50 percent in 1943, and 30 percent in 1944."[260] The strategic objective of the attack on Pearl Harbor was "to knock out the U.S. Pacific Fleet for at least 6 months so that Japan could conquer Southeast Asia without American naval interference."[261] The objective of Japan's move southward, as communicated in "The Essentials for Carrying Out the Empires Policies" to the Emperor, were:

> To expel the influence of [the United States, Great Britain, and the Netherlands] from East Asia, to establish a sphere for self-defense and self-preservation of our Empire, and to build a New Order in Greater East Asia. In other words, we aim to establish a close and inseparable relationship in military, political, and economic affairs between our Empire and the countries of the Southern Region, to achieve our Empire's self-defense and self-preservation.[262]

Washington's use of oil as a tool of coercive diplomacy failed to halt Japan's expansionist campaigns and factored into Japan's decision to attack Pearl Harbor. The attack on Hawaii ultimately failed to significantly degrade the U.S. Pacific Fleet and neglected to destroy critical infrastructure vital to sustained U.S. military operations on the island.[263] Despite gaining control of oil production in the Dutch East Indies, Japan

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258 Record, *Japan's Decision*, 20–21.

259 Ibid., 25–27.

260 Ibid., 25–26.

261 Ibid., 38.

262 Ibid., 36.

263 Ibid., 37–38.

was unable protect the shipment of petroleum to the mainland from U.S. attacks. America's submarine force was modest in comparison to its surface combatants, but accounted for 55% of Japan's lost merchant vessels. The United States was sinking Tokyo's oil tankers faster than Japan could produce them and, by 1945, production all but disappeared.[264] By 1942, fuel shortages were beginning to have strategic implications on Japan's ability to utilize its forces.[265] Fuel conservation dictated slower cruising speeds, restricted maneuvers to direct engagements, and restricted the use of their fuel intense Battleships.[266] In an attempt to preserve petroleum reserves for military use, Tokyo implemented policies restricting the use of civilian petroleum and began to strip the nation of resources that could be converted to usable fuel. As a result, civilian consumption dropped to 4% of its 1940 figures by 1944, and synthetic fuel production failed to produce sufficient quantities once domestic resources were exhausted.[267] Fuel shortages also dictated shorter flight school training times; the result of which increased the shortage of skilled pilots and weighed on Japan aviation strategy, which required "eight bombers and sixteen fighters" to sink a U.S. capital ship. Tokyo's strategists concluded that the same affect could be achieved by "one to three suicide plans" and would only require half of the fuel allotment due to no return flight.[268] Vehicles and ships were converted to run on coal or biomass, greatly reducing speed, maneuverability, and reliability; in effect, Japan's inability to procure or produce sufficient oil greatly contributed to their defeat.[269] Fuel shortages were so severe by the end of the war that the only vehicle available to transport General Douglas MacArthur from Atsugi to Yokohama to sign the instrument of surrender was coal fired and repeatedly broke down during the 12-mile journey.[270]

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264 Yergin, *The Prize*, 356–358.

265 Ibid., 357–359.

266 Ibid.

267 Ibid., 358.

268 Ibid., 361.

269 Ibid., 360.

270 Ibid., 366.

B. ARAB OIL EMBARGO OF 1973

The 1973 Arab oil embargo adds to this thesis by providing another example of coercive energy diplomacy and the effects it has had on the world's oil market. Today's energy strategies and policies are a result of events occurring between 1960 and 1990: energy conservation, diversification, environmental concerns, and security policies were developed to protect access to oil in the Middle East, while minimizing vulnerability to disruptions from the area. This section will be organized by analysis of developments prior to the 1973 embargo, its immediate effects, and then post-embargo developments.

Experiences in World War II show the strategic value of oil as a tool of coercive diplomacy and as a strategic weapon. U.S. production during the war supplied nearly 90% of allied oil and represented approximately 70% of the world's production, which was vital to sustained allied operations throughout the war.[271]As early as 1943, U.S. officials realized that America would not be able to sustain domestic production due to the decline of reserve discoveries and the growth in demand, which would lead to it becoming dependent upon petroleum imports. Secretary of the Interior Harold Ickes warned that "if there should be a World War III it would have to be fought with someone else's petroleum, because the United States wouldn't have it."[272] In 1943, Everette Lee DeGolyer was sent on a special foreign mission to analyze the potential petroleum reserves in the Middle East and returned early in 1944, reporting that "the center of gravity of world oil production is shifting from the Gulf-Caribbean area to the Middle East-to the Persian Gulf Area."[273] Seeking to preserve America's petroleum, the prospect of increased production in Middle East would offer an alternative source of cheap oil, not only for the United States, but for Europe, which had traditionally depended upon the United States for supplies.[274]

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271 Yergin, *The Prize*, 371–395.

272 Ibid., 395.

273 Ibid., 393–395.

274 Ibid., 400–407.

In mid-February 1945, President Roosevelt met with King Ibn Saud of Saudi Arabia onboard the USS *Quincy* to discuss the prospects of "a Jewish homeland in Palestine, oil, and the postwar configuration of the Middle East."[275] While the King's commentary suggested a Jewish homeland in Germany, he sought a continued assurance of American interests in the region after the war.[276] Three years later, America became a net importer of oil and recognized Israel as a state after the Jewish National Council proclaimed it a state, despite being warned by King Saud that U.S. "support of a Jewish state . . . would be a death blow to American interests in the Arab world."[277] The ensuing Arab-Israeli War strained American relations in the region and provided the Arab League with the option of disrupting oil supplies in order to pressure the world to abandon Israel. King Saud warned that he may not desire to place sanctions on American oil concessions, but pressure from the Arab world may obligate him to.[278] Developments in the oil market, international and domestic, went through several changes up to the first Arab oil embargo in 1967. First, the market became overcrowded as a result of additional supply sources coming online. The Soviets, in particular, played a substantial role by undercutting market prices to gain market share.[279] In order to stay competitive, foreign companies in the Middle East reduced spot prices, which were manifested in the establishment of OPEC on September 14, 1960.[280] Despite President Dwight D. Eisenhower's reluctance to implement protectionist policies, on March 10, 1959, he limited U.S. imports to 9% of total consumption. Over the ensuing 14-year period, Americans paid higher oil prices relative to the rest of the world, but President Eisenhower's action had the benefit of not only preserving domestic production, but production capacity increased some 29% by 1968.[281]

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275 Yergin, *The Prize*, 404.

276 Ibid.

277 Ibid., 410–426.

278 Ibid., 426.

279 Ibid., 515–532.

280 Ibid., 522.

281 Ibid., 537–539.

The first attempt at harnessing the "oil weapon" was in 1967, during the third Arab-Israeli War.[282] On June 6, Arab oil ministers cut production by 60% and placed embargos on states friendly to Israel, targeting the United States, Great Britain, and West Germany.[283] By September, however, the embargo was lifted and had proved to be ineffective in pressuring the West into abandoning support for Israel.[284] The outcome of the Arab-Israeli War left Israel in possession "of the Sinai, all of Jerusalem and the West Bank, and the Golan Heights."[285] The West was able to mitigate the effects of the embargo by coordinating shipments of non-Arab petroleum to embargoed nations and shipments originally destined for the West elsewhere, and, in effect, largely avoided a significant impact on import levels.[286] Increased demand for oil eventually started catching up with available production in 1970, spare production in 1967 was three million b/d and reduced to approximately 500,000 b/d.[287] A combination of nationalization of oil companies in the Middle East and the increase of President Eisenhower's import cap in 1971 made the United States and other Western powers more dependent upon Gulf imports. The United States notified its European allies two years prior that America's spare production would no longer be able to serve as a security measure in the event of a disruption. Even at 100% production levels, the United States was unable to meet demand without increasing its import cap.[288] Nationalization of oil companies occurred throughout OPEC during these time frames: "Libya (1970), Algeria (1971–74), Iraq (1972), Venezuela (1974), Kuwait (1975–77) and Saudi Arabia (1973–1980)."[289] State Department official James Akins summarized the impending situation in his recognition that any one major supplier could potentially disrupt the world's oil market and that the United States should "act to reduce the growth rate of consumption,

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282 Yergin, *The Prize*, 554–555.

283 Ibid.

284 Ibid., 557–558.

285 Ibid., 555.

286 Ibid., 556.

287 Ibid., 586.

288 Ibid., 565–585.

289 Colgan, "The Emperor," 613.

raise domestic production, and strive to import from 'secure sources,'" recognizing that doing so would come at a greater cost to consumers.[290] A combination of events between 1967 and 1973 made harnessing the oil weapon more effective: OPEC assumed control over production and pricing of oil from foreign companies, the United States removed the import quota system in April 1973, and the USSR had been supplying arms to the Arabs.[291]

At the onset of the fourth Arab-Israeli War on October 5, 1973, an oil embargo was not yet implemented, but threatened in the event of continued U.S. support for Israel. Washington, however, could not accept an ally being defeated by Soviet forces and continued to supply Israel with much needed assistance.[292] On October 20, OPEC formally enacted the embargo on Washington, depriving the United States of the 6.2 million barrels it imported from the region.[293] Despite increased pressure to remove its support for Israel, Washington remained committed to thwarting Soviet advances in the region; the threat of nuclear war between the two superpowers in the Middle East resulted in a cease fire between Israel and Egypt on October 25, 1973, but the embargo remained in place.[294] The embargo ended nearly five months later and was successful in weakening the Western alliance and raising the official posted price to $11.65 per barrel.[295] A combination of incremental production cuts, increased prices, and gasoline rationing drove auction prices even higher. France, Great Britain, and Japan succumbed to OPEC's oil weapon and distanced themselves from Washington, aligning policies with the Arabs with regard to Israel.[296] Despite these countries' gaining preferential access to Arabian petroleum, the price increase to $11.65 per barrel wreaked havoc on the global economy and provided the impetus for cooperation among developed nations. In February 1974,

290 Yergin, *The Prize*, 591.

291 Ibid., 591–606.

292 Ibid., 605–608.

293 Ibid., 607–609.

294 Ibid., 607–612.

295 Ibid., 625–629.

296 Ibid., 627–628.

the United States called for an energy conference to develop a cooperative framework to safeguard economies from future shortages, creating the IEA.[297] Over the next two decades, fluctuations in price resulting from the transition toward a market-based commodity, rather than long-term contracts; security concerns involving politics and stability in the Middle East; Soviet incursion into the Gulf; growing demand/prices; and new reserve discoveries/developments helped to shape policies that are still relevant today.[298] Increased prices and fears of limited availability of the commodity gave pertinence to energy efficiency policies, diversification strategies, infrastructure development, strategic petroleum reserves, and emergency sharing protocols between developed nations in the event of future disruptions.[299]

C. RUSSIA AND EUROPE

Russia's evolving relationship with Europe in the post-Cold War era is relevant to this thesis by providing another example of coercive energy diplomacy and a brief analysis of resources gained through the annexation of Crimea in 2014. Unique to this case study are the effects that a transit state, Ukraine, had on the relationship between Russia and Europe. This study will be organized by a discussion of gas supply disruptions, their effects, and, finally, a brief discussion on Crimea.

The evolving relationship between Russia and Europe in the post-Cold War era focuses on events in 2006, 2009, and 2013 into 2014. The collapse of the Soviet Union in 1991 resulted in the establishment of several new states in the post-Soviet bloc. The former Soviet Union left a vast network of gas pipelines linking Russian gas fields to European markets, with limited alternative options of energy of sufficient volume. Ukraine is a key focus in this study and represents the equivalent of maritime shipping for transport in the previous two examples. Due to the linear nature of a pipeline, it is not possible to divert transit routes without developing additional nodes for resources to be diverted. Europe received approximately 40% of its gas from Russia in 2007, 80% of

297 Yergin, *The Prize*, 629–630.

298 Ibid., 653–692.

299 Ibid.

which traversed Ukraine via pipeline, leaving Europe vulnerable to supply disruptions not only from Russia, but by Ukraine as a transit state.[300,301] Ukraine's mounting debts to Russia and Kiev's inability or refusal to settle these debts resulted in a four-day disruption of gas during the winter of 2006 and a two-week disruption in 2009, affecting 17 European countries downstream of Ukraine.[302] Russia sought to use the repercussive effects of cutting supplies to gather pressure from the European Union (EU) on Ukraine to settle debts, renegotiate price, and make prepayments for future delivery with limited success. In each instance, Russia negotiated repayment terms and set future prices and prepayment arrangements, only for Ukraine to default on bilateral agreements.[303] Similar scenarios occurred in 2013, where negotiations were faltering, but gas supplies were not disrupted.[304] Following the 2009 disruption, Europe reaffirmed its commitment to diversifying energy resources, diversifying suppliers, and increasing energy efficiency in order to reduce its dependence upon and vulnerability to Russia's gas diplomacy, manifested in the May 2014 "European Energy Security Strategy."[305] An explanation may lie in the fact that gas and oil sales represented 68% of Russia's total export revenues and accounted for nearly 50% of its federal budget in 2013. The gas supply disruptions in 2009 caused Russia to lose over $1 billion in uncollected export revenue.[306] [307] While a cut in gas flows from Russia to Europe would inevitably have an economic effect, the effectiveness of this practice has become seemingly more

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300 Chunyang Shi, "Perspective on Natural Gas Crisis Between Russia and Ukraine," *Review of European Studies* 1, no. 1 (June 2009): 57, accessed July 15, 2015, http://search.proquest.com/docview/817464320?accountid=12702.

301 Irena Dimitrova, "EU-Russia Energy Diplomacy: 2010 and Beyond?," *Connections: The Quarterly Journal Conn* 9, no. 4 (2010): 3, doi:10.11610/connections.9.4.01.

302 Adam N. Stulberg, "Out of Gas?: Russia, Ukraine, Europe, and the Changing Geopolitics of Natural Gas," *Problems of Post-Communism*62, no. 2 (2015): 114–117, accessed September 5, 2015, doi:10.1080/10758216.2015.1010914

303 Stulberg, "Out of Gas," 118–121.

304 Ibid., 113–114.

305 Ibid., 121.

306 Ibid., 117.

307 Alexander Metelitsa, "Oil and Natural Gas Sales Accounted for 68% of Russia's Total Export Revenues in 2013," U.S. Energy Information Administration, July 23, 2014, 1, accessed January 5, 2016, https://www.eia.gov/todayinenergy/detail.cfm?id=17231.

detrimental to Russia than to European consumers. The development of alternative pipelines, integrated trade systems, increased efficiency, and alternative energy have increased European resilience to a disruption in supplies. These developments were partly developed because of the strategic advantage that Russia possessed with its energy diplomacy.[308]

Ukraine's ambition to reduce its dependence upon Russian energy resources was somewhat possible in 2012; Kiev was optimistic in its future developments and claimed that it may become a net exporter by 2020.[309] The ambition of energy independence practically disappeared in March 2014, when Russia annexed Crimea and gained control over the energy resources in the Black Sea.[310] Exploration studies conducted by Ukraine and Russia before the annexation indicated that Moscow's portion of the Black Sea promised dismal oil and gas deposits, while Ukraine's area of the Black Sea promised to be very rich with energy resources.[311] In addition to gaining potential market shares, and depriving Ukrainian access, Moscow is now able to develop its South Stream Pipeline on a more direct and economical route to Europe, rather than having to bypass Ukraine's Crimean boundaries.[312] The 2015 NSS condemns Russia's actions in Crimea as a violation of Ukraine's sovereign territory and an endangerment to international norms, which Moscow has "taken for granted since the end of the Cold War."[313] Washington has since implemented sanctions on Russia and made military assistance, as well as energy security consultation available through the Freedom Support Act of 2014.[314]

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308 Stulberg, "Out of Gas," 122.

309 Ibid.

310 William J. Broad, "In Taking Crimea, Putin Gains a Sea of Fuel Reserves," *The New York Times*, May 17, 2014, 5, accessed September 1, 2015, http://www.nytimes.com/2014/05/18/world/europe/in-taking-crimea-putin-gains-a-sea-of-fuel-reserves.html?_r=0.

311 Ibid., 3.

312 Ibid., 5.

313 White House, National Security, 10.

314 Kim, "More Rebalancing," 341.

D. CONCLUSION

These three case studies have progressively helped to shape how governments address energy security challenges. The strategic importance that states place on energy security goes beyond economic ambitions of export revenues, or continued economic growth, but includes politics and military capabilities. Suppliers have increased, and are still competing to increase, market shares, whether by undercutting prices through production levels or by gaining control of a territory with access to additional reserves. The diversification of energy types, diversification of suppliers, efficiency standards, strategic petroleum reserves (SPR), and emergency energy mitigation programs have been key aspects of importers' strategies to protect themselves from price hikes and supply disruption. The use of coercive energy policies in the case of the Arab oil embargo and Russia came at the expense of exporter reputations as reliable suppliers, which necessitated importer policies to limit their exposure to the politicized nature of energy manipulation. There was limited success in achieving the political objective in these examples, but they ultimately failed to achieve their objectives: the U.S. embargo prompted Japan's attack on Pearl Harbor; Israel is still in existence; and Ukraine succumbed to pressures not from the EU, but through the realization that they risk being excluded by the development of alternative transit routes. Another lesson gleaned from these examples is the willingness of states to employ force to ensure access to energy resources: Japan's temporary acquisition of the Dutch East Indies; the Carter Doctrine, and subsequent campaigns in the Middle East; and Russia's annexation of Crimea. A Brooking's Institute report describes China as feeling "many of the same vulnerabilities as pre-war Japan."[315] Despite diversification of its energy suppliers, transportation provides a critical vulnerability where a large portion of Beijing's imports pass through areas of American influence. Seizing control of resources either in the contested waters throughout the Asia-Pacific region or seizing control over the SLOCs is an unacceptable outcome to the international community, as is denial of access to the SLOCs by the United States to China.

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[315] Jones et al., *Fueling a New*, 11.

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V. CONCLUSION AND RECOMMENDATIONS

The conclusion of this thesis analyzes possible implications on the current environment in light of the three case studies in order to identify potential friction points between Washington and Beijing. Based upon potential friction points, policy recommendations will be made in hopes of preventing conflict. Limitations of these recommendations are subject to issues encountered during research and the unpredictability of policy decisions. It is impossible to determine the future relationship between Beijing and Washington, but aligning policies to pacify potential conflicts and contending interests could support the peaceful rise of China.

A. IMPLICATIONS

China has been described as feeling the same vulnerabilities as Japan did prior to World War II, in that it is heavily dependent upon energy imports.[316] Beijing has diversified its suppliers, but a upward of 77% of its energy imports converge in transit through the SLOCs, which are maintained by U.S. forces.[317] Compared to prewar Japan, when the United States was responsible for 80% of Tokyo's imports, the threat of Washington leveraging access to the SLOCs would deny Beijing of an equivocal percentage of their energy imports.[318] Japan's calculus in deciding to exercise the war option was based upon four variables: (1) relative power compared to the United States was going to decrease within the next five years; (2) continued reliance on the United States for petroleum would subvert them to American interests; (3) U.S. commitments to Europe would prevent the redistribution of forces to Asia Pacific in time to deter Japan's acquisitions in southern Asia; and (4) consolidation of U.S. forces in Pearl Harbor presented a target of opportunity.[319] While China has been accused of being overly aggressive with neighboring countries over disputed areas in the Asia-Pacific region,

316 Jones et al., *Fueling a New*, 11.

317 "China's Overseas Investments," 8.

318 Yergin, *The Prize*, 307.

319 Ibid., 305–326.

Beijing's relations with the United States have come short of force.[320] Developing military capabilities to thwart a U.S. attempt at inciting an energy resource embargo through the SLOCs and actions regarding territorial disputes in the East and South China Seas are potential points of contention between the United States and China.

Considering these factors, manipulation of Beijing's access to supplies may result in conflict despite the disparity in conventional forces. It could be suggested that the relative disparity between the military forces of the United States and China may become less relevant in the near future and may be forgoing conflict until it achieves a comparable military force (see Figure 1). Beijing's policy makers have expressed little desire to replace or cooperate with the United States in security operations in the Middle East and the SLOCs which they depend on for energy resources.[321] The development of logistic capabilities along the SLOCs and infrastructure investment in the area, however, suggests that Beijing has not forgone security as an objective, but prefers a domestic capability to dependence upon U.S. security guarantees.[322] According to the International Institute for Strategic Studies, the functionality of the string of pearl suggests that anything beyond 200 miles from China's coastline would be difficult for Beijing to sustain or defend against regional actors, who benefit from strategically shorter logistic chains.[323] Maritime security issues relating to state and non-state actor disruption of the SLOCs, for example mining of either of the Straits, may be another consideration in Beijing's military buildup, rather than depending on American forces. Ambiguity in Beijing's intentions revolve around overlapping energy security interests, while greater transparency on the part of both the United States and China would help to prevent conflict and possibly lead to a cooperative security framework. In the case of territorial disputes, Japan viewed the East Dutch Indies as a necessary objective to achieving economic longevity and a reduction in dependence upon the United States as an oil

320 Sutter, "China and America,"361.

321 Jones et al., *Fueling a New*, 19.

322 Ibid.

323 Green and Schearer, "Defining U.S. Indian,"179–180.

supplier.[324] The issue emerging in the South and East China Seas revolves around the ambiguity of China's 9-dash line and extensive claims under the UNCLOS.[325] In addition to potentially erupting into conflict, joint development projects have been forestalled out of fear that it would signal recognition of China's territorial claims.[326] Increasing domestic production by way of gaining control over resources in the region could also weigh upon Beijing's decisions, similar to Japan's decision making prior to World War II. Contrary to U.S. actions in World War II, the repositioning of forces in the Asia-Pacific region as a deterrent has deviated from the concentration of forces. The redistribution of 60% of the U.S. forces is spread throughout the region, including Japan, the Philippines, Australia, and Singapore.[327]

The Middle East will continue to play a central role in the world's energy markets, as it possesses nearly half of the world's proven recoverable reserves and is responsible for nearly 30% of the world's petroleum output.[328] Stability and security in this region is still within U.S. interests, but policies and global developments resulting from the Arab oil embargo in 1973 have contributed to the emergence of a more resilient system. Short of an embargo, OPEC has limited options in exerting oil as a tool of coercive diplomacy.[329] A study of the effectiveness of OPEC since its inception suggests that while the organization still has the potential to disrupt a substantial percentage of the world's production, it does not function cohesively in managing production levels.[330] Production quotas and trade settlements are often ignored as member states produce

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[324] Yergin, *The Prize*, 322–323.

[325] "Stirring Up the South China Sea (I)," International Crisis Group, April 23, 2012, 3, accessed February 2, 2016, http://www.crisisgroup.org/~/media/Files/asia/north-east-asia/223-stirring-up-the-south-china-sea-i.pdf.

[326] Ibid., i–16.

[327] Sliwinski, "Dire Straits," 110.

[328] Rasoul Sorkhabi, "How Much Oil in the Middle East?," *GEO ExPro* 11, no. 1 (2014): 42, accessed February 10, 2016, http://assets.geoexpro.com/uploads/ea53756c-5182–48e4-ad71–0d47d895e841/GEO_ExPro_v11i1.pdf.

[329] Colgan, "The Emperor," 614.

[330] Ibid., 624–626.

according to individual interests.[331] Ongoing issues in the Middle East could potentially worsen, as rentier states attempt to restructure their subsidy programs to reduce their reliance upon oil revenues.[332] Moreover, enacting an embargo before rentier states are able to diversify their respective economies would be equally detrimental to suppliers as it would to consumers.[333] The reduction of U.S. presence in the region is more reflective of post-campaign force levels, rather than a result of the U.S. pivot to the Pacific. Regardless of the reason, some analysts speculate a deterioration of the traditional security for access agreement.[334] Increased U.S. oil production has afforded Washington the ability to potentially reevaluate commitments to the region as disruptions would likely have less of a direct effect upon America's energy security. China on the other hand, has become increasingly dependent upon energy resources from the region which some suggest could result in a more cooperative security framework between Washington and Beijing.[335] The impact of an energy resource disruption on the global economy necessitates continued commitments to the region as reflected in the NSS.[336] Other analysts suggest that Washington may be able to leverage security operations in the Middle East as a deterrent to China's aggressive actions in the Asia-Pacific; continued deterioration of peace and stability on the part of China, however, would necessitate the relocation of U.S. forces from the Middle East.[337,338]

The post-embargo environment has produced a more resilient energy market. Decreasing dependence on Middle Eastern oil has shaped policies aimed at decreasing demand through efficiency, diversification, and emergency disruption plans. High oil

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331 Colgan, "The Emperor," 624–626.

332 "Saudi Arabia, UAE Lead GCC Subsidy Reform," Oil & Gas Journal, January 11, 2016, 1, accessed February 2, 2016, http://www.ogj.com/articles/2016/01/saudi-arabia-uae-lead-gcc-subsidy-reform.html.

333 Ibid.,

334 Michaud et al., "Impact of Domestic Shale," 1.

335 Ibid., 1–5.

336 White House, *National Security*, 2.

337 Michaud et al., "Impact of Domestic Shale," 4–6.

338 Green and Schearer, "Defining U.S. Indian," 183.

prices have helped to diversify the energy market away from Middle Eastern oil; development of additional conventional sources of natural gas and oil throughout the world resulted from the world's energy companies hoping to cash in on large profit margins, and avoid instability and nationalization of their investments in the Middle East.[339] Unconventional and alternative energy have also benefited from high oil prices by making them economically feasible or competitive; continued R&D has resulted in technological gains that have helped to reduce prices while increasing efficiency.[340]

Climate change has become the façade for efficiency and emission standards. The solution to reducing GHG emissions, specifically in China's coal energy production, lies in increased efficiency standards and retrofitting existing infrastructure with CCS.[341] Natural gas power plants are also a part of the solution, but as domestic production of natural gas necessitates gas imports for many Asian-Pacific countries, increased demand throughout the region would result in similar security issues to petroleum imports.[342] The global petroleum glut and resulting low oil prices make it difficult for capital intensive technologies and methodologies to compete.[343,344] Policies that incentivize cleaner technology despite low oil prices are necessary to meet the two-degree goal by 2020.[345,346] While China is not a member of the IEA, its participation in a 2002 emergency disruption scenario, development of an SPR, increased efficiency standards, and emission controls have the potential to lead to more cooperation under the guise of climate change initiatives.[347]

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339 "World Energy Outlook 2015," 3–5.

340 Ike S. Bussell, *Oil Shale Developments* (New York: Nova Science Publishers, 2009), 71–72.

341 Adkins et al., "Energy, Climate Change," 9–18.

342 Jones et al., *Fueling a New*, 1–12.

343 Bussell, *Oil Shale Developments*, 72.

344 Adkins et al., "Energy, Climate Change," 8.

345 "World Energy Outlook 2015," 6.

346 Adkins et al., "Energy, Climate Change," 15.

347 Cronshaw and Grafton, "Reflections on Energy," 137.

Implications of Russia's evolving relationship with Europe in the post-Cold War era suggest that the global energy market has diffused the centrality of energy supplies to discourage the use of coercive energy strategies.[348] Nonetheless, the issue of transit states as it relates to pipelines adds an additional vulnerability to disruption. Overland transit routes have expanded as a result of energy security strategies of diversifying supplies and routes, but they require additional policy alignment between trans-border nations to reduce border inefficiencies. Despite having vast energy reserves, Moscow's annexation Crimea in 2014, and its resulting control over additional energy resources, suggests a land grab motivated by energy resources.[349,350] Control over resources, as in Japan's case in World War II, and China's existing claims in the Asia-Pacific Region suggests the possibility of conflict stemming from similar motivations in the annexation of Crimea. China's development of the second Eurasian land bridge played a role in Russia and Ukraine's calculation in the use of energy politics in 2014, and has had an effect upon Russia's demand security considerations to a similar shift toward the Asia-Pacific region.[351]

In summation, supplies of Middle Eastern oil to China through the SLOCs will become increasingly vital to Beijing's economic and political interests. The same is true for the globalized system, but China being the largest consumer of energy resources transported through this route necessitates a military capacity to secure its access.[352] Climate change is becoming increasingly relevant to China's energy security policies, as Beijing seeks to reduce pollution associated with its coal power infrastructure to placate domestic pressures over its effects.[353] Similarly, domestic pressure is calling for China to exert its territorial claims in the Asia-Pacific region.[354] Forgoing its developments on the

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348 Stulberg, "Out of Gas," 114–115.

349 Ibid., 112.

350 Broad, "In Taking Crimea," 1–3.

351 Cooley, "China's Changing Role," 1–6.

352 Green and Schearer, "Defining U.S. Indian," 179–182.

353 Jones et al., *Fueling a New*, 7.

354 "Stirring Up the South," 3.

Spratly Islands would be unlikely, but the ongoing territorial disputes between China and regional actors over control of resources has the potential to escalate into conflict and obligate U.S. involvement under various defense treaties.[355] In the near-term, Beijing's energy security strategies can decrease the nation's energy intensity, but projected growth will still result in an increased demand.[356] Controlling additional petroleum and natural gas reserves in the Asia-Pacific region would allow Beijing to increase domestic production and serve as a source of national pride for not conceding to demands by the international community. In the words of President Barrack Obama, "if we don't write the rules, China will write the rules out in that region. We will be shut out. "[357]

B. RECOMMENDATIONS

Recommendations in this section are based on objectives of reducing the risk of conflict emerging from territorial disputes, issues associated with access to the SLOCs, and enhancing U.S. energy security. Limitations in these recommendations are confined to the scope of variables considered in the research, which do not account for cultural elements or catastrophic events in the environment. Addressing the underlying issues of territorial disputes and SLOC access would potentially provide a framework for the Arctic region, as it becomes increasingly accessible and for the incorporation India's future energy demand.

In keeping with Washington's codified national interests in the NSS, establishment of a "rules-based international order advanced by U.S. leadership" would be enabled by either creating a separate agreement or utilizing the UNCLOS to settle territorial disputes in the Asia-Pacific region.[358] Further research into possible implications of the U.S. ratification of the UNCLOS is recommended for future study. Within negotiations, arbitration should focus on delimiting China's nine dash line to

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355 "U.S. Collective Defense Arrangements," U.S. Department of State, Philippine Treaty/Southeast Asia Treaty/Australia and New Zealand Treaty/Japanese Treaty/Republic of Korea Treaty, accessed December 10, 2015, http://www.state.gov/s/l/treaty/collectivedefense/.

356 Sohn, "Energy-Supply Security," 194–196.

357 Kim, "More Rebalancing," 342.

358 White House, *National Security*, 2.

acceptable terms between regional states. The Spratly Islands will likely be a development that China is unwilling to forfeit, but could provide a leverage point to achieve the best acceptable terms in settling disputed areas. Within this said agreement should be a clause stipulating limitations on UNCLOS legal authority granted to manmade structures or to areas of overlapping territorial claims within an agreed upon geographic range, example, overlapping claims originating from geographical features within two nautical miles of each other. The potential for cooperation between regional states exists in the form of joint development of resources, but hesitation resulting from issue of sovereignty has prevented progress.[359] By delimiting China's claims and clarifying its legal bounds under the UNCLOS or a new agreement would provide the necessary arbitration of acceptable terms to avoid conflict.

Whether China is forestalling military conflict to reduce the disparity in conventional power, or has limited objectives in developing the capability to defend its interests against SLOC disruption or access denial, increased military-to-military cooperation is needed to prevent conflict. It is not within America's interest to leverage China's access to the SLOCs as a policy option. Doing so would potentially have implications to similar effects of the U.S. oil embargo on Japan during World War II. Increased transparency and dialogue resulting from a cooperative security arrangement of the SLOCs would potentially reduce the threat perception posed by U.S. military forces in the Asia Pacific. The United States should maintain its cooperative developments in the region to enhance regional security capabilities, specifically within the Strait of Malacca between Malaysia, Singapore, and Indonesia, but should take a more direct approach by incorporating China in this strategy.

Similar to policies before the 1973 Arab oil embargo, the United States should enact protectionist policies to prevent atrophy of domestic production resulting from low oil prices. In addition to reducing U.S. reliance on oil imports, Washington would potentially gain the ability to influence "floor" prices of oil on the international markets. Future studies on the cost-benefit comparison between U.S. protectionist policy costs to

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359 "Stirring Up the South," 3–11.

major exporter budgetary impacts, based upon various prices would help to determine a balanced target floor price. Within the calculus of exporting nations, specifically OPEC, the rational of sustained production at low prices can be assumed to have been made with the acknowledgment of the acceptable cost of running budget deficits, as experienced by Saudi Arabia in 2015.[360] Introducing protectionist policies to U.S. production would require the world's major suppliers to reevaluate production levels to match prices and benefit from increased profits, or possibly increase production in an effort to increase market shares. Regardless of the second- or third-order effects of protectionist policies, increased or sustained domestic production is vital to America's energy security strategy. Climate change, growing populations, and increasing energy demands will continue to strain the rentier state model; the 2015 McKinsey Report suggests drastic changes be made to Saudi Arabia's economy in order for it to remain a viable state.[361] China's increased dependence upon Middle Eastern oil, relative to that of the United States, could potentially lead to increased cooperation in security operations in the region.

The United States should maintain its policies regarding the TPP, regional security development, and development of A2/AD capabilities. The United States should also continue to advocate climate change initiatives in order to affect demand side controls of efficiency and emission standards in developing countries. Offering solutions to countries that would otherwise be unable to afford clean technology alternatives or possess the technological know-how to affect demand related controls will help to reduce the world's demand for petroleum and gas. Within the NSS, President Obama states that, "there are no global problems that can be solved without the United States, and few that can be solved by the United States alone."[362]

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360 Andy Tully, "Saudi Arabia Cuts Subsidies as Budget Deficit Soars," Oil Price, December 30, 2015, 1, accessed January 25, 2016, http://oilprice.com/Energy/Energy-General/Saudi-Arabia-Cuts-Subsidies-As-Budget-Deficit-Soars.html.

361 Gassan Al-Kibsi et al., "Saudi Arabia Beyond Oil: The Investment and Productivity Transformation," *McKinsey Global Institute*, December 2015, 1–17, accessed March 2, 2016.

362 White House, *National Security*, 3.

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